Francisco R. Ortega
Curriculum Vitae

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SECTION 1: Employment History/Awards

EDUCATION

Florida International University — Miami, FL

Ph. D. in Computer Science — *Fall 2014*

   Title: *3D Navigation with Six Degrees-of-Freedom Using a Multi-Touch Display*
   Advisors: Dr. Armando Barreto and Dr. Naphtali Rishe

Florida International University — Miami, FL

M. S. in Computer Science — *Fall 2008*

Florida International University — Miami, FL

B. S. in Computer Science – Cum Laude — *Fall 2007*

Dissertation

   Title: *3D Navigation with Six Degrees-of-Freedom Using a Multi-Touch Display*
   Advisors: Dr. Armando Barreto and Dr. Naphtali Rishe

PROFESSIONAL APPOINTMENTS

- Assistant Professor, Director of NUI Lab, Department of Computer Science, Colorado State University, Fall 2018 – Present.

- Assistant Professor (Courtesy Appoinment), Richardson Design Center, Colorado State University, Fall 2019 – Present

- Assistant Professor (Courtesy Appoinment), Systems Engineering, Colorado State University, Fall 2020 – Present

- Assistant Professor (Courtesy Appointment), Florida International University, Fall 2018 – Summer 2021.

- Visiting Assistant Professor, Director of OpenHID Lab, Florida International University, Fall 2016 – Summer 2018.

- Vertically Integrated Projects (VIP) Coordinator, Florida International University, Spring 2016 – Spring 2018.

- Visiting PostDoc Fellow, Director of OpenHID Lab, Florida International University, Spring 2015 – Summer 2016.

OTHER POSITIONS (ADDITIONAL WORK EXPERIENCE)

- Research & Teaching Assistant, Florida International University, Spring 2009 – Fall 2014.

- Software Engineer, IBLUES Corporation, Fall 1999 – Fall 2014

- Operator & Asst. SysAdmin, Tecnicard, Inc., Spring 1994 – Fall 1999

CURRENT JOB DESCRIPTION

Assistant Professor. Tenure-Track. Department of Computer Science.

40% Teaching. 50% Research/Creative Activity. 10% Service/Outreach. 0% Admin.

HONORS AND AWARDS

- Best Demo Award, International Conference on Artificial Reality and Telexistence Eurographics Symposium on Virtual Environments (ICAT-EGVE). Situational Awareness in Human Computer Interaction: Diana's World. Shared with other co-authors (see publications). 2020

- Nominated for College of Engineering Dissertation of the Year Award, 2014.

- Best Overall Graduate Student of the School of Computing and Information Sciences Year Award, 2014.

- Microsoft and Tapia Conference Gaming Code-A-Thon First Prize: Xbox ONE ($500.00), 2014.

- $986.00 Tapia Conference Scholarship Award, 2014.

- $350.00 US Dollars ACM I3D 2013 conference stipend, 2013.

- *Cum Laude* honors for Bachelor in Computer Science, 2007.

- Ph.D. GAANN Fellowship awarded by the US Department of Education, 4 years.

- McKnight Dissertation Fellowship awarded by Florida Education Fund, 4 semesters.

SECTION 2: Publications/Scholarly Record

PUBLICATION SUMMARY

The following information is provided as a summary of the publication record showing the year 2021, overall record at Colorado State University (CSU), and overall numbers for all publications:

- **2021 Summary**: 1 book, 3 journals (2 of them with CSU students), 2 conference articles (1 of them with CSU students), 1 book chapter, and 3 workshop articles (2 of them with students).

- **CSU Overall Summary**: 2 books, 8 journals (6 of them with CSU students), 1 book chapter (with CSU student), 7 conference articles (6 of them with CSU students), 11 workshop articles (9 of them with CSU students), 5 posters (4 of them with CSU students), 1 conference course (with CSU Students), 2 demos (with CSU students) 2 magazine articles (with CSU students), 1 doctoral consortium (with CSU student), and 5 invited papers (1 of them with a CSU student).

- **Overall**: 3 books, 10 journals, 2 book chapters, 19 conference articles, 16 workshop articles, 12 poster articles, 3 demos, 1 doctoral consortium for PhD student, 1 conference course, 1 other referred article, 2 magazine articles, 5 invited papers.

PUBLICATIONS

Legend: CSU's graduate student publications are denoted by a **dagger** (†). CSU's undergraduate students are denoted by an **asterisk** (∗). Florida International University's (FIU) graduate student publications are denoted by a **double dagger** (‡). FIU's undergraduate students are denoted by a **star** (⋆). Markings are for students that have been under my supervision. Additional information about the publications is included at the end of the citation, enclosed by brackets (**[]**). Acceptance rate for papers are denoted by **AR**. Impact factor is denoted by **IF**. 5-Year impact factor is denoted by **5-IF**. Citation count (greater than 3) is denoted by **CC**. All categories are sorted by year in descending order. Publications last updated: *9/3/2022.

Books

B.1 Williams, A.†and **Ortega, F.**, *A Concise Guide to Elicitation Methodology.* Access: https://arxiv.org/abs/2105.12865. 2021. Fort Collins, CO. Open Access.

B.2 Barreto, A., Adjouadi, M., **Ortega, F.**, and O-larnnithipong, N., *Intuitive Understanding of Kalman Filtering Using MatLab*, CRC Press, New York, NY, 2020. ISBN-13: 978-0367191337.

B.3 **Ortega, F.**, Abyarjoo, F., Barreto, A., Rishe, N., and Adjouadi, M., *Interaction Design for 3D User Interfaces: The World of Modern Input Devices for Research, Applications, and Game Development.* CRC Press/AK Peters, New York, NY, 2016. ISBN-13: 978-1482216943. **[CC:23]**.

Refereed Journal Articles

J.1 Williams†, A. and **Ortega, F**. The Impacts of Referent Display on Gesture and Speech Elicitation. In *IEEE Transactions on Visualization and Computer Graphics*. In press. 2022.

J.2 Warden, A. C.†, Wickens, C. D., Clegg, B. A., Ortega, and **Ortega, F. R.**. Information Access Effort: The Role of Head Movements for Information Presented at Increasing Eccentricity on Flat Panel and Head-Mounted Displays. Human Factors Journal. Submitted. 2022.

J.3 Warden†, A., Wickens, C.D., Rehberg, D.*, **Ortega, F.**, Clegg, B. Fast, Accurate, but Sometimes Too-Compelling Support: The Impact of Imperfectly Automated Cues in an Augmented Reality Head-Mounted Display on Visual Search Performance. IEEE Transactions on Human-Machine Systems. Submitted. 2022.

J.4 Silva-Calpa, G.F.M., Raposo, A.B. and **Ortega, F.R.**. Collaboration Support in Co-located Collaborative Systems for Users with Autism Spectrum Disorders: A Systematic Literature Review. In *International Journal of Human–Computer Interaction*, Vol. 37, No. 1, pp. 15-35. Taylor and Francis. 2021, https://doi.org/10.1080/10447318.2020.1801224. **[IF: 3.353, 5-IF:3.196]**.

J.5 Heting Wang[†], Vidya Gaddy[†], James R. Beveridge, and **Francisco R. Ortega**. Building an Emotionally Responsive Avatar with Dynamic Facial Expressions in Human—Computer Interactions. In *Multimodal Technologies and Interaction*, 5, no. 3: 13, 2021. DOI: https://doi.org/10.3390/mti5030013. **[IF: 3.08]**.

J.6 Wickens, C., Mifsud, D.[†], Rodriguez, R.[†], and **Ortega, F.** Mitigating the costs of spatial transformations with a situation awareness augmented reality display: Assistance for the Joint Terminal Attack Controller. In *Human-Factors Journal*, 2021, pp. 3–17. DOI: https://doi.org/10.1177/00187208211022468 **[IF: 2.88, 5-IF: 4.173]**.

J.7 Williams, A.S.[†], Garcia, J.[†], De Zayas, F.[‡], Hernandez, F.[⋆], Sharp, J, **Ortega, F.R.** The Cost of Production in Elicitation Studies and the Legacy Bias-Consensus Trade off. Multimodal Technologies and Interaction. 2020; 4(4):88. https://doi.org/10.3390/mti4040088. **[IF: 3.08, CC:4]**.

J.8 Williams, A.[†]and **Ortega, F.**s Understanding Gesture and Speech Multimodal Interactions for Manipulation Tasks in Augmented Reality Using Unconstrained Elicitation. In *ACM Proceeding of Human-Computer Interaction*, 4, ISS, Article 202 (November 2020), 21 pages. ACM, New York, NY, USA, 2020, https://doi.org/10.1145/3427330. **[IF:4.42, CC:6]**.

J.9 Williams, A.S.[†], Garcia, J.[†], **Ortega, F.R.** Understanding Multimodal User Gesture and Speech Behavior for Object Manipulation in Augmented Reality Using Elicitation. In *IEEE Transactions on Visualization and Computer Graphics*. Vol. 26, No. 12, pp.3479-3489, Dec. IEEE. 2020. **IF:4.558, 5-IF:4.317, CC:9**, https://doi.org/10.1109/TVCG.2020.3023566.

J.10 **Ortega, F.R.**, Williams, A.S.[†], Tarre, K.[‡], Barreto, A. and Rishe, N. 3D Travel Comparison Study between Multi-Touch and GamePad. In *International Journal of Human–Computer Interaction* Vol. 36, No. 18, pp.1699-1713. Taylor and Francis. 2020, https://doi.org/10.1080/10447318.2020.1780016. **IF: 1.713, 5-IF:2.15**

J.11 Vieira, E.R., Civitella, F., Carreno, J., Junior, M.G., Amorim, C.F., D'Souza, N., Ozer, E., **Ortega, F.** and Estrázulas, J.A., 2020. Using Augmented Reality with Older Adults in the Community to Select Design Features for an Age-Friendly Park: A Pilot Study. In *Journal of Aging Research*, Vol. 2020, Article ID. 8341034 pp. 1–8. Hindawi. 2020, https://doi.org/10.1155/2020/8341034. **AR:19%**.

J.12 Cofino J., Barreto A., Abyarjoo F., and **Ortega, F.**, Sonically-Enhanced Tabular Screen-Reading. In *Journal on Technology & Persons with Disabilities (JTPD)*, Vol. 2, pp. 46–57, 2014. **[CC: 3]**.

J.13 Ren P., Barreto A., Huang J., Gao Y., **Ortega, F.**, and Adjouadi, M.. Off-line and On-line Stress Detection through Processing of the Pupil Diameter Signal. In *Annals of Biomedical Engineering*, vol. 42, no. 1, pp. 162–176, 2014, https://doi.org/10.1007/s10439-013-0880-9. **[IF: 3.324, 5-IF:3.378 CC: 55]**.

Refereed Chapters in Books

β.1 Daunhauer, L., **Ortega, F.**, Beveridge, R., Strout, J.[†], Bundy, A., *Chapter Five − Captivating: Avatars as therapeutic agents for children with intellectual and developmental disabilities.* Editors: Riggs, N, Rigles, B, in *International Review of Research in Developmental Disabilities.* Academic Press, Vol. 61, 2021, pp. 133–157, ISSN 2211-7095, ISBN 9780128245859. https://doi.org/10.1016/bs.irrdd.2021.08.006.

β.2 Hernandez, H., **Ortega, F.**, Reducing Video Game Creation Effort with Eberos GML2D. Chapter in *Game Development Tools* edited by Marwan Y. Ansari. AK Peters/CRC Press. New York, NY, 2011.

Refereed Proceeding/Transactions (Conferences)

T.1 Warden, A. C.[†], Wickens, C. D., Rehberg, D.[*], Clegg, B. A., and **Ortega, F. R.**. Information Access Effort: Are Head Movements "Cheap" or Even "Free"?, Proceedings of the Human Factors and Ergonomics Society 66th Annual Meeting. In press. 2022.

T.2 Warden, A. C.[†], Wickens, C. D., Mifsud[†], D., Ourada, S.[†], Clegg, B. A., and **Ortega, F. R.**). Visual Search in Augmented Reality: Effect of Target Cue Type and Location. Proceedings of the Human Factors Society Annual Meeting. In Press. 2022.

T.3 Mifsud, D.[†], Wickens, C. D., Crane, P., Maulbeck, M., and **Ortega, F. R.**. The Effectiveness of Gaze Guidance Lines in supporting JTAC's attention allocation Proceedings of the Human Factors Society Annual Meeting. In Press. 2022.

T.4 Zhou, X.[†], Williams, A.S.[†], **Ortega, F.R.** (2022). Towards Establishing Consistent Proposal Binning Methods for Unimodal and Multimodal Interaction Elicitation Studies. In: *Human-Computer Interaction. Theoretical Approaches and Design Methods.* Human-Computer Interaction International (HCII) 2022. Lecture Notes in Computer Science, vol 13302. Springer, Cham. https://doi.org/10.1007/978-3-031-05311-5_25.

T.5 M. W. Al Azad, S. Shannigrahi, N. Stergiou, **F**. R. Ortega and S. Mastorakis. CLEDGE: A Hybrid Cloud-Edge Computing Framework over Information Centric Networking. 2021 IEEE 46th Conference on Local Computer Networks (LCN), 2021, pp. 589-596, doi: https://doi.org/10.1109/LCN52139.2021.9525006. **[AR: 28%]**.

T.6 Richi Rodriguez[†], Domenick Mifsud[†], Chris Wickens, Adam S. Williams[†], Kathrine Tarre, Peter Crain, **Francisco R. Ortega**. (2021), Virtual Reality Compensatory Aid for Improved Weapon Splash-Zone Awareness,. In: Human-Computer Interaction. Virtual, Augmented and Mixed Reality. HCII 2021. Lecture Notes in Computer Science, vol. 12770. Springer, Cham, https://doi.org/10.1007/978-3-030-77599-5_36. **[AR: 30%]**.

T.7 Williams, A.[†], Angelini, C.[*], Kress, M.[‡], Ramos, E., D'Souza, N., Rishe, N., Medina, J[*], and **Ortega, F.**. Using Augmented Reality for City Planning. Human-Computer Interaction International 2020. Springer, Lecture Notes in Computer Science. Vol 12190, 2020, https://doi.org/10.1007/978-3-030-49695-1_17. **[AR: 29%, CC: 3]**.

T.8 David G. McNeely-White[†], **Francisco R. Ortega**, J. Ross Beveridge, Bruce A. Draper, Rahul Bangar[†], Dhruva Patil[†], James Pustejovsky, Nikhil Krishnaswamy, Kyeongmin

Rim, Jaime Ruiz, and Isaac Wang. User-Aware Shared Perception for Embodied Agents. In *2019 IEEE International Conference on Humanized Computing and Communication (HCC)*, Laguna Hills, CA, USA, 2019, pp. 46–51, https://doi.org/10.1109/HCC46620.2019.00015. **[CC:4]**.

T.9 O-larnnithipong, N., Ratchatanantakit, N., **Ortega, F.**, and Barreto, A., Statistical Analysis of Novel and Traditional Orientation Estimates from an IMU-Instrumented Glove. In *Antona M., Stephanidis C. (eds) Universal Access in Human-Computer Interaction. Multimodality and Assistive Environments*. HCII 2019. Lecture Notes in Computer Science, vol 11573, pp. 282–299. Springer, Cham. 2019, https://doi.org/10.1007/978-3-030-23563-5_23.

T.10 Bolivar S.*, Perez D.*, Carrasquillo A.*, Williams A.S.[†], Rishe N.D., **Ortega, F.**, 3D Interaction for Computer Science Educational VR Game. In *Antona M., Stephanidis C. (eds) Universal Access in Human-Computer Interaction. Theory, Methods and Tools. HCII 2019*. Lecture Notes in Computer Science, vol 11572, pp. 408-411. Springer, Cham. 2019, https://doi.org/10.1007/978-3-030-23560-4_30

T.11 Tangnimitchok, S., O-larnnithipong, N., Ratchatanantakit, N., Barreto, A., **Ortega, F.**, and Rishe, N., A System for Non-Intrusive Affective Assessment in the Circumplex Model from Pupil Diameter and Facial Expression Monitoring in *Human-Computer Interaction. Theories, Methods, and Human Issues*, HCI 2018, Lecture Notes in Computer Science, Springer, vol 10901, pp. 465–477, 2018. **[AR: 27, CC:5%]**.

T.12 Balcazar, R.[‡], **Ortega, F.**, Tarre, K.[‡], Barreto, A., Weiss, M., and Rishe, N., CircGR: Interactive Multi-Touch Gesture Recognition using Circular Measurements. In *Proceedings of the 2017 ACM International Conference on Interactive Surfaces and Spaces* (ISS '17). ACM, New York, NY, USA, 2017. pp. 12-21. **[AR: 26.90%, CC:6]**.

T.13 **Ortega, F.**, Galvan, A.*, Tarre, K.*, Barreto, A., Rishe, N., Bernal, J.*, Balcazar, R.[‡], and Thomas, J.*, Gesture Elicitation for 3D Travel via Multi-Touch and Mid-Air Systems for Procedurally Generated Pseudo-Universe. In *2017 IEEE Symposium on 3D User Interfaces* (3DUI '17), Los Angeles, CA, 2017, pp 144–153. **[AR:32%, CC:22]**

T.14 Tangnimitchok, S., O-Larnnithipong, N., Barreto, A., **Ortega, F. R.**, and Rishe, N. D., Finding an Efficient Threshold for Fixation Detection in Eye Gaze Tracking. In *International Conference on Human-Computer Interaction, Interaction Platforms and Techniques* of the series Lecture Notes in Computer Science- Volume 9732, pp. 93—-103, Springer-Verlag New York, Inc., Jul. 2016. **[AR:29%]**.

T.15 Abyarjoo, F., O-Larnnithipong, N., Tangnimitchok, S., Adjouadi, M., **Ortega, F.**, and Barreto, A., PostureMonitor: Real-Time IMU Wearable Technology to Foster Poise and Health. In *International Conference of Design, User Experience, and Usability* of the series Lecture Notes in Computer Science, vol. 9188, Springer International Publishing, pp 543–552, 2015. **[AR:30%, CC:11]**.

T.16 **Ortega, F.**, Barreto, A., Rishe, N., Adjouadi, M., Abyarjoo, F., and O-Larnnithipong, N., GyroTouch: Wrist Gyroscope with a Multi-Touch Display. In *International Conference on Human-Computer Interaction*, Human-Computer Interaction: Interaction Technologies of the series Lecture Notes in Computer Science, vol. 9170, pp. 262–270, Springer International Publishing, 2015. **[AR:30%]**.

T.17 **Ortega, F.**, Barreto, A., Rishe, N., Adjouadi, M., and Abyarjoo, F., Multi-Touch Gesture Recognition Using Feature Extraction. In *Innovations and Advances in Computing, Informatics, Systems Sciences, Networking and Engineering* of the series Lecture Notes in Electrical Engineering, vol. 313, pp. 291–296, Springer International Publishing, 2015. **[CC:4]**.

T.18 Abyarjoo, F., Barreto, A., Cofino, J., and **Ortega, F.**, Implementing a Sensor Fusion Algorithm for 3D Orientation Detection with Inertial/Magnetic Sensors. In *Innovations and Advances in Computing, Informatics, Systems Sciences, Networking and Engineering* of the series Lecture Notes in Electrical Engineering, vol. 313, pp. 305–310, Springer International Publishing, 2015. **[CC:90]**.

T.19 **Ortega, F.**, Liu, S., Hernandez, F., Barreto, A., Rishe, N., and Adjouadi, M., PeNTa: Multi-Touch Modeling using Petri Nets. In *International Conference on Human-Computer Interaction*, Human-Computer Interaction: Theories, Methods, and Tools of the series Lecture Notes in Computer Science, HCI International 2014, vol 8510, pages 361–372. Springer International Publishing, June 2014. **[AR:31%]**.

T.20 Cofino, J., Barreto, A., Abyarjoo, F., and **Ortega, F.**, Sonifying HTML Tables for Audio-Spatially Enhanced Non-Visual Navigation. In *2013 Proceedings of IEEE SoutheastCon*, Jacksonville, FL, pp. 1–5, 2013.

T.21 Abyarjoo, F., Barreto, A., Abyarjoo, S., **Ortega, F.**, and Cofino, J., Monitoring Human Wrist Rotation in Three Degrees of Freedom. In *2013 Proceedings of IEEE SoutheastCon*, Jacksonville, FL, pp. 1–5, 2013. **[CC: 9]**.

T.22 **Ortega, F.**, Barreto, A., Rishe, N., and Adjouadi, M., Interaction with 3D Environments Using Multi-Touch Screens. In *Innovations and Advances in Computer, Information, Systems Sciences, and Engineering* of the series Lecture Notes in Electrical Engineering, vol. 152, pp. 381–392, CISSE. Springer, New York, 2013. **[AR:41%]**.

T.23 Verhoef, T., Lisetti, C., Barreto, A., **Ortega, F.**, Van der Zant, T., and Cnossen, F., Bio-sensing for Emotional Characterization without Word Labels. In *Human-Computer Interaction. Ambient, Ubiquitous and Intelligent Interaction, 13th International Conference, HCI International.* Lecture Notes in Computer Science, vol 5612, pp. 693–702, Springer, Berlin, Heidelberg. 2009. **[AR:32%, CC:27]**.

Refereed Workshop Articles

W.1 A. Karduna*, A. S. Williams[†], and **F. R. Ortega**. NUI-SpatialMarkers: AR Spatial Markers For the Rest of Us. In *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops* (VRW), 2022, pp. 58-60, doi: 10.1109/VRW55335.2022.00022. IEEE VR 2022 Workshop - Open Access Tools and Libraries for Virtual Reality. 2022.

W.2 V. Gaddy[†]and **F. R. Ortega**. Exploring Factors Associated with Retention in Computer Science Using Virtual Reality. In *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops* (VRW), 2022, pp. 271-276, DOI: https://doi.org/10.1109/VRW55335.2022.00062. Seventh workshop on K-12+ Embodied Learning through Virtual and Augmented Reality (KELVAR) 2022.

W.3 A. U. Batmaz, D. Mifsud[†], A. Steed, W. Stuerzlinger,**F. Ortega** (2021). Researchers' and Participants' Experiences on Distributed User Studies Conducted in the First Year of COVID-19 Pandemic. In *First XR Remote Research Workshop* at ACM CHI '21, pp 1–3.

W.4 A. S. Williams and **F. R. Ortega**. Using a 6 Degrees of Freedom Virtual Reality Input Device With An Augmented Reality Headset In A Collaborative Environment. In *2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW).* Third Workshop on Novel Input Devices and Interaction Techniques (NIDIT), 2021, pp. 205-209. DOI: https://doi.org/10.1109/VRW52623.2021.00045.

W.5 Jack Ratcliffe, Francesco Soave, Melynda Hoover, **Francisco Raul Ortega**, Nick Bryan-Kinns, Laurissa Tokarchuk, and Ildar Farkhatdinov. 2021. Remote XR Studies: Exploring Three Key Challenges of Remote XR Experimentation. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems.* Association for Computing Machinery, New York, NY, USA, Article 121, 1–4. DOI: https://doi.org/10.1145/3411763.3442472.

W.6 Pustejovsky, J., Krishnaswamy, N., Beveridge, R., **Ortega, F.R.**, Patil, D.[†], Want, H.[†], and White, D.[†]. Interpreting and Generating Gestures with Embodied Human Computer Interactions. In *ACM IVA '20, Generation and Evaluation of Non-verbal Behaviour for Embodied Agents Workshop.* 2020. In print.

W.7 Shannigrahi, S., Mastorakis, S., and **Ortega, F.**. Next-Generation Networking and Edge Computing for Mixed Reality Real-Time Interactive Systems. In *2020 IEEE International Conference on Communications Workshops (ICC Workshops)*, pp. 1–6, 2020. 10.1109/ICCWorkshops49005.2020.9145075. **[CC: 12]**

W.8 Willams, Adam S.[†], Coler, S., and **Ortega, F.**. Conversations On Multimodal Input Design With Older Adults. In *ACM CHI 2020 Designing Interactions for the Ageing Populations Addressing Global Challenges Workshop*, pp. 1-4, 2020, https://arxiv.org/abs/2008.11834.

W.9 Gaddy, V.[†]and **Ortega, F.**. Exploring the Impact of Belonging on Computer Science Enrollment Using Virtual Reality. In *2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW).* Fifth workshop on K-12+ Embodied Learning through Virtual and Augmented Reality (KELVAR) 20. Atlanta, GA, USA, 2020, pp. 444-448, https://doi.org10.1109/VRW50115.2020.00094.

W.10 Williams, A. S.[†]and **Ortega, F.**. Insights on visual aid and study design for gesture interaction in limited sensor range Augmented Reality devices. In *2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW).* Second Workshop on Novel Input Devices and Interaction Techniques (NIDIT) '20. Atlanta, GA, USA, 2020, pp. 19-22, https://doi.org/10.1109/VRW50115.2020.00286.

W.11 N. O-larnnithipong, N. Ratchatanantakit, S. Tangnimitchok, **F. Ortega** and A. Barreto, Hand Tracking Interface for Virtual Reality Interaction based on MARG sensors. In *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Workshop on Novel Input Devices and Interaction Techniques (NIDIT)* Osaka, Japan, 2019, pp. 1717-1722, https://doi.org/10.1109/VR.2019.8797982.

W.12 **F. R. Ortega**, K. Tarre[‡], M. Kress[‡], A. S. Williams[†], A. B. Barreto and N. D. Rishe, Selection and Manipulation Whole-Body Gesture Elicitation Study In Virtual Reality. In *2019 IEEE*

Conference on Virtual Reality and 3D User Interfaces (VR), Workshop on Novel Input Devices and Interaction Techniques (NIDIT), Osaka, Japan, 2019, pp. 1723-1728, https://doi.org/10.1109/VR.2019.8798105. **[CC: 8]**.

W.13 Raikwar, S.[†], D'Souza, N., Rogers, C.[⋆], Kress, M.[‡], Williams, A.[†], Rishe, N., **Ortega, F.**, CubeVR: Digital Affordances for Architecture Undergraduate Education using Virtual Reality In *2019 IEEE Conference on Virtual Reality and 3D User Interfaces, Workshop on K-12 Embodied Learning through Virtual & Augmented Reality (KELVAR)*, Osaka, Japan, 2019, pp. 1623-1626, https://doi.org/10.1109/VR.2019.8798115. **[CC: 4]**.

W.14 **Ortega, F.**, Bolivar, S.[⋆], Bernal, J.[⋆], Galvan, A.[⋆], Tarre, K.[⋆], Rishe, N., and Barreto, A. Towards a 3D Virtual Programming Language to Increase the Number of Women in Computer Science Education. In *2017 IEEE Virtual Reality Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR), Los Angeles, CA. pp. 1–6. **[CC: 12]**.

W.15 **Ortega, F.**, Jamides, S.[⋆], Barreto, A., and Rishe, N., The Tabletop is dead. Long Live the Tabletop!. In *The Disappearing Tabletop: Social and Technical Challenges for Cross-Surface Collaboration* workshop on Interactive Surfaces and Spaces (ISS '17). 2017. Available at: https://thedisappearingworkshop.wordpress.com/at-the-workshop/.

W.16 **Ortega, F.**, Balcazar, R.[‡], Barreto, A., and Rishe, N., Smart Learning Desk: Towards an Interactive Classroom. In *IEEE Virtual Reality 2016 Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR '16), Mar. 2016. Available at: https://sites.google.com/site/vrkelvar/vr2016.

W.17 Wu, Y., Hernandez, F., **Ortega, F.**, Clarke, P., and France, R., Measuring the Effort for Creating and Using Domain-Specific Models. In *Proceedings of the 10th Workshop on Domain-Specific Modeling* (DSM '10). ACM, New York, NY, USA, article 14, pages 6, 2010. **[AR:66%, CC:32]**.

W.18 Hernandez, H., **Ortega, F.**, Eberos GML2D: A Graphical Domain-Specific Language for Modeling 2D Video Games. In *Proceedings of the 10th Workshop on Domain-Specific Modeling* (DSM '10). ACM, New York, NY, USA, article 4, pages 6, 2010. **[AR:66%, CC:26]**.

Refereed Poster Articles

P.1 Plabst, L.[†], Obertdörfer, **Ortega, F.**, and S., Niebling, F. Press the red button: A user study comparing notification placement with augmented and non-augmented tasks in AR. In *The 21st IEEE International Symposium on Mixed and Augmented Reality* (ISMAR) 2022. In press.

P.2 D. M. Mifsud, A. S. Williams, **F. Ortega** and R. J. Teather. Augmented Reality Fitts' Law Input Comparison Between Touchpad, Pointing Gesture, and Raycast. In *2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops* (VRW), 2022, pp. 590-591, doi: 10.1109/VRW55335.2022.00146.

P.3 Vieira, E. R., Estrázulas, J. A., Civitella, F., Carreno, J., D'Souza, N., Ozer, E., **Ortega, F**. (2019). Does wearing augmented-reality goggles affect older adults' kinematics during gait? The Gerontological Society of America's 71st Annual Scientific Meeting. Austin,

Texas. November 13-17, 2019. Innovation in Aging, 3(S1), S338, https://doi.org/10.1093/geroni/igz038.1226.

P.4 Johnston, D.*, Flack, J.*, Ray, I., and **Ortega, F.**, Towards a Virtual Reality Home IoT Network Visualization. In *2019 Graphics Interface - Human-Computer Interaction Track*, pp. 1–2. May, 2019.

P.5 Angelini, C.⋆, Williams, A.†, Kress, M.‡, Vieira, E., D'Souza, N., Rishe, N., Medina, J.⋆, **Ortega, F.**, City Planning with Augmented Reality. In *2019 Graphics Interface - Human-Computer Interaction Track*, pp. 1–2. May, 2019. **[CC: 7]**.

P.6 **F. R. Ortega**, K. Tarre ‡, M. Kress‡, A. S. Williams, A.†, A. B. Barreto and N. D. Rishe. Selection and Manipulation Whole-Body Gesture Elicitation Study In Virtual Reality. In *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, Osaka, Japan. pp. 1110-1111. doi: 10.1109/VR.2019.8798182.

P.7 Katherine Tarre‡, Adam S. Williams†, Lukas Borges⋆, Naphtali D. Rishe, Armando B. Barreto, and **Francisco R. Ortega**. 2018. Towards first person gamer modeling and the problem with game classification in user studies. In Proceedings of the 24th ACM Symposium on Virtual Reality Software and Technology (VRST '18), Stephen N. Spencer (Ed.). ACM, New York, NY, USA, Article 125, 2 pages. DOI: https://doi.org/10.1145/3281505.3281590. 2018.

P.8 Galvan, A.⋆, **Ortega, F.**, and Rishe, N., Procedural Celestial Rendering for 3D Navigation. In *2017 IEEE Symposium on 3D User Interfaces (3DUI)*, Los Angeles, CA. 2017. pp. 211–212

P.9 Calella, J.‡, **Ortega, F.**, Rishe, N., Barreto, A., and Bernal, J.⋆, HandMagic: Towards User Interaction with Inertial Measuring Units. In *2016 IEEE SENSORS*. Orlando, FL. 2016, pp. 1-3. **[AR:58%]**.

P.10 Vassigh, S., Elias, A., **Ortega, F.**, Davis, D., Gallardo, G., Alhaffar, H., Borges, L.⋆, Bernal, J.⋆, and Rishe, N., Integrating Building Information Modeling with Augmented Reality for Interdisciplinary Learning. In *2016 IEEE International Symposium Mixed and Augmented Reality* (ISMAR-Adjunct), pp. 260–261, IEEE, 2016. **[CC:21]**.

P.11 **Ortega, F.**, Rishe, N., and Barreto, A., TAMGeF: Touch-midAir-Motion Framework for Spatial Input. In *Proceedings of the 3rd ACM Symposium on Spatial User Interaction (SUI '15)*. ACM, New York, NY, USA, pp. 136, 2015.

P.12 **Ortega, F.**, Barreto, A., Rishe, N., Adjouadi, M., and Liu, S., Exploring Modeling Language for Multi-Touch Systems Using Petri Nets. In *Proceedings of the 2013 ACM International Conference on Interactive Tabletops and Surfaces* (ITS '13), ACM, New York, NY, USA. pp. 361–364. 2013. **[CC: 6]**.

P.13 **Ortega, F.**, Barreto, A., and Rishe, N., Augmenting Multi-Touch with Commodity Devices. In *Proceedings of the 1st Symposium on Spatial User Interaction* (SUI '13). ACM, New York, NY, USA, p. 95. 2013.

P.14 **Ortega, F.**, Barreto, A., Rishe, N. and Adjouadi, M., and Abyarjoo, F., Poster: Real-Time Gesture Detection for Multi-Touch Devices. In *IEEE 8th Symposium on 3D User Interfaces* (3DUI '13), Orlando, FL, pp. 167-168. 2013.

Refereed Demo Papers

D.1 Raikwar, A.[†], Plabst, P.[†], and **Ortega, F.**. ARtisan Bistro: A Cooking Task Environment to Conduct Studies in Augmented Reality. In *The 21st IEEE International Symposium on Mixed and Augmented Reality* (ISMAR) 2022. In press.

D.2 Krishnaswamy, N., Beveridge, R., Pustejovsky, J., Patil, D.[†], McNeely-White, D. G.[†], Wang, H.[†], and **Ortega, F. R.**. Situational Awareness in Human Computer Interaction: Diana's World. In International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments (ICAT-EGVE): Demos. ACM/Eurographics. Best Demo Award. 2020

D.3 Raikwar, A.[†], Stephens, J., **Ortega, F.**, Demo:Assessing Sports Related Concussion in Soccer Players Using Immersive VR Soccer. In *2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, Atlanta, GA, USA, 2020, pp. 822-823, https://doi.org/10.1109/VRW50115.2020.00262.

D.4 Balcazar, R.[‡], **Ortega, F.**, Tarre, K.[‡], Barreto, A., Weiss, M., Rishe, N., [DEMO] CircGR: Interactive Multi-Touch Gesture Recognition using Circular Measurements, in *Proceedings of the 2017 ACM on Interactive Surfaces and Spaces (ISS '17)*. Brighton, England.

Refereed Doctoral Consortium

Δ.1 Willams, Adam S.[†], and **Ortega, F.**. Multimodal User-Defined inputs for Optical See Through Augmented Reality Environments. In *2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, Atlanta, GA, USA, 2020, pp. 557-558, https://doi:10.1109/VRW50115.2020.00130.

Refereed Conference Courses

C.1 Ortega, F., Williams, A.[†], Garcia, J[†]. 2020. Multi-modal gesture elicitation methodology for children. In *Proceedings of the 2020 ACM Interaction Design and Children Conference: Extended Abstracts (IDC '20)*. Association for Computing Machinery, New York, NY, USA, 85−88, https://doi.org/10.1145/3397617.3401808.

Other Referred Papers

O.1 Aazhang, B., Abler, R. T., Allebach, J. P., Bost, L. F., Cavallaro, J. R., Chong, E. K. P., Coyle, E. J., Cullers, J. B. S., Dennis, S. M., Dong, Y., Enjeti, P. N., Filippas, A. V., Froyd, J. E., Garmire, D., George, J., Gilchrist, B. E., Hohner, G. S., Hughes, W. L., Johnson, A., Kim, C., Kim, H., Klenke, R. H., Lagoudas, M. Z., Llewellyn, D. C., Lu, Y., Lybarger, K. J., Marshall, S., Muralidharan, S., Ohta, A. T., **Ortega, F. R.**, Riskin, E. A., Rizzo, D. M., Ryder, C. R., Shiroma, W. A., Siller, T. J., Sonnenberg-Klein, J., Sadjadi, S. M., Strachan, S. M., Taheri, M., Woods, G. L., Zoltowski, C. B., Fabien, B. C., Johnson, P., Collins, R., and Murray, P. Vertically Integrated Projects (VIP) Programs: Multidisciplinary Projects with Homes in Any Discipline In *2017 ASEE Annual Conference & Exposition*, Columbus, Ohio. June, 2017. https://peer.asee.org/29103.

Scientific/Trade Magazine Articles

M.1 Williams, A.S.[†]and **Ortega, F.R.**. 2020. Evolutionary gestures: when a gesture is not quite legacy biased. In *Intractions* 27, 5 (September - October 2020), 50–53, https://doi.org/10.1145/3412499.

M.2 Steed, A., **Ortega, F.R.**, Williams, A.[†], Kruijff, E., Stuerzlinger, W., Batmaz, A. U., Won, A.S., Rosenberg, E.S., Simeone, A.L., and Hayes, A. 2020. Evaluating immersive experiences during Covid-19 and beyond. In *Intractions* 27, 4 (July - August 2020), 62–67, https://doi.org/10.1145/3406098. **[CC: 45]**.

Invited Papers

I.1 Bolivar, S.[⋆], Perez, D., Carrasquillo, A., Willams, Adam S.[†], Rishe, N., and **Ortega, F.**, 3D Interaction for Computer Science Educational VR Game. In *Universal Access in Human-Computer Interaction. Virtual, Augmented, and Intelligent Environments*. UAHCI 2019. Orlando, FL. 2019. In press.

I.2 O-larnnithipong, N. Barreto, A., Ratchatanantakit, N., Tangnimitchok, S., and **Ortega, F.**, Real-Time Implementation of Orientation Correction Algorithm for 3D Hand Motion Tracking Interface. In *Universal Access in Human-Computer Interaction. Methods, Technologies, and Users*. UAHCI 2018. Lecture Notes in Computer Science, Springer, vol 10907, pp. 228–242. Invited session: Spatial User Interaction Beyond the Mouse, Las Vegas, NV, 2018.

I.3 Bolivar, S.[⋆], **Ortega, F.**, Zock-Obregon, M.[⋆], and Rishe, N., 3D Spatial Gaming Interaction to Broad CS Participation. In *Universal Access in Human-Computer Interaction. Virtual, Augmented, and Intelligent Environments*. UAHCI 2018. Lecture Notes in Computer Science, Springer, vol 10908, pp. 39–47. Invited session: Spatial User Interaction Beyond the Mouse, Las Vegas, NV, 2018.

I.4 Torres, N.[‡], **Ortega, F.**, Bernal, J.[⋆], Barreto, A., and Rishe, N., Towards Multi-Modal Interaction with Interactive Paint . In *Universal Access in Human-Computer Interaction. Virtual, Augmented, and Intelligent Environments*. UAHCI 2018. Lecture Notes in Computer Science, Springer, vol 10907, pp. 299–308. Invited session: Spatial User Interaction Beyond the Mouse, Las Vegas, NV, 2018.

I.5 Vassigh, S., **Ortega, F.**, Barreto, A., Tarre, K.[‡], and Maldonado, J., Use of 3D Human-Computer Interaction for Teaching in the Architectural, Engineering and Construction Fields. In *Universal Access in Human-Computer Interaction. Virtual, Augmented, and Intelligent Environments*. UAHCI 2018. Lecture Notes in Computer Science, Springer, vol 10908, pp. 149–159. Invited session: Spatial User Interaction Beyond the Mouse, Las Vegas, NV, 2018.

Non-Refereed Articles

N.1 **Ortega, F.**, Barreto, A., Rishe, N., and Adjouadi, M., Towards 3D Data Environments Using Multi-Touch Screens. In *ACHI 2012: The Fifth International Conference on Advances in Computer-Human Interactions*, pp. 118–121, 2012.

N.2 **Ortega, F.**, Barreto, A., Rishe, N., Adjoudi, M., and Abyarjoo, F., GyroTouch: Complementing the Multi-Touch Display. In *ACM Richard Tapia Celebration of Diversity in Computing*, 2014.

N.3 Cofino, J., Barreto, A., Abyarjoo, F., and **Ortega, F.**, B.A.S.S. Blind-Assistive Spatialized Screen-reading. In *ACM Richard Tapia Celebration of Diversity in Computing*, 2014.

Miscellaneous

Y.1 Rishe, N. D. , Adjouadi, M., **Ortega, F**. Smart Bracelets for Remote Monitoring of Wearers' Physical and Affective State". In *2020 9th Mediterranean Conference on Embedded Computing (MECO)*, Budva, Montenegro, 2020, pp. 1-1, https://doi.org/10.1109/MECO49872.2020.9134093.

Dissertations

Z.1 **Ortega, F.**. 3D navigation with six degrees-of-freedom using a multi-touch display. Ph.D. Dissertation. Florida International University. December 2014.

CONTRACTS & GRANTS SUMMARY

The following information is provided as a summary for the external funding record for the year 2021 and the overall external funding record at CSU. Internal funding is listed but not accounted in the summary.

- 2021 Summary: $1,417,377 external funding awarded as PI. $4748 external in-kind contributions.

- CSU Overall Summary: $1,951,291 of external funding awarded as PI. $421,777 of external funding awarded as co-PI. In addition, $426,768 were part of the last funded year for DARPA's CWC program. Note that I became a co-PI in the last year plus an extension. Therefore, while I did work in the project as co-PI, I did not originate this grant. $500 given as gift by an external organization. $4748 external in-kind contributions.

CONTRACTS & GRANTS

Externally-Funded Projects as PI

F.1 PI: Assessing Cognitive Load and Managing Extraneous Load to Optimize Training. $750,000. Office Of Naval Research. March 1, 2023 – August 15, 2025. 2 year option $600,000.

F.2 PI: Perceptual/Cognitive Aspects of Augmented Reality: Experimental Research and a Computational Model. $900,000. Office Of Naval Research. August 16, 2021 – August 15, 2024.

F.3 PI: "Ego-Centric Emotion Recognition using Augmented Reality Headsets (CSU - I2O Postdoctoral Fellowship - Ego-Centric Emotion Recognition)". 01/01/2022 – 12/31/2023. DARPA-RA-21-02. $299,957.

F.4 PI: "WAR Fighting Performance: Augmented Reality Multi-Modal Interaction Techniques for JTAC and Battlefield Readiness." Defense University Research Instrumentation Program (DURIP). $201,420. DOD-NAVY-ONR-Office of Naval Research. 05/14/2020. Funded: 08/30/2021 − 07/30/2022.

F.5 PI: Perceptual/Cognitive Aspects of Augmented Reality: Experimental Research and a Computational Model. $900,000. Office Of Naval Research. August 16, 2021 − August 15, 2024.

F.6 PI: "CRII: CHS: Understanding Gesture User Behavior in Augmented Reality Headsets." $175,000. NSF CRII NSF 19-579. 2019. 8/1/2020 − 7/31/2022. Status: Active.

- NSF REU Supplemental $16,000. 6/1/2022 − 5/30/2023.
- NSF REU Supplemental $16,000. 8/1/2020 − 7/30/2021.

F.7 PI: "CCRI: Planning: Collaborative Research: Low-Latency for Augmented Reality Interactive Systems (LLARIS)." $100,000. NSF 19-512 CCRI. 10/1/2020 − 9/31/2022 Collaborative proposal between CSU, Tennesse Tech, and University of Nebraska Omaha. Status: Active.

- NSF REU Supplemental $16,000. 5/1/2022 − 4/30/2023.
- NSF REU Supplemental $16,000. 5/1/2021 − 4/30/2022.

F.8 PI: "Fused Augmented Realties with Synthetic Vision (FAR/SV) Systems for Ground Forces VR Rehab, Inc.",$198,914). ONR subAward via VRR. 07/23/2019 − 11/30/2023. Status: Completed.

F.9 PI: "N202-090 − Single Amphibious Integrated Precision Augmented Reality Navigation (SAIPAN) System via Fused Augmented Realities- User Interface (FAR-UI)" $44,000. SBIR Phase I with VRR via ONR. Awarded: 08/2020. Status: Completed as 5/15/2021.

F.10 PI: "NIH-NIDA SUD Challenge − BioBrace VR: Bio-Interactive Device with Personalized Avatar Therapy for SUD". $10,000. Awarded to BioMagic VR, Inc. (spawn from FIU) in preparation for STTR/SBIR. Status: Completed.

F.11 PI: "NSF SBIR Phase IIA: 2.5D Extensions to Braille-based User Interaction". Polymer Braille Inc. $105,000. Award AWD000000006592, Project No: 800007091. May-18-2016. (Sub-Award). 04/18/16−04/17/17. Status: Completed.

Externally-Funded Projects as co-PI

F.10 co-PI "FW-HTF-P: Optimizing Long-Term Human Performance in Future Work.", $150,000. NSF, BCS 1928502. Program: Future of Work at the Human-Technology Frontier. Allocation funds to Computer Science Department: 80%, including 1 GRA for 3-4 semesters, supplies, and faculty effort. PI: Benjamin Clegg, Psychology, CSU. Period: 09/01/2019 − 08/31/2021. Status: Completed.

F.11 co-PI "Communication through Gestures, Expression, and Shared Perception." CWC DARPA Award via DOD-ARMY. co-PI as of Fall 2019. $2,433,843. 07/31/2015 - 08/30/2021. PI: J. Ross Beveridge, Computer Science, CSU. Status: Active. Active participant on the project since Fall 2018 and co-PI of the white paper that spawned Fox World project which included additional money. Status: Completed.

- co-PI "Innovative Embodied Agent Approaches to Assessment with Developmental and Intervention Science Applications". Supplemental to CWC DARPA. Faelyn Fox (World). PI: Dr. J. Ross Beveridge. $271,777. 7/31/2020 − 8/30/2021. Status: Completed.

F.12 co-PI: Florida Center for Cybersecurity (FC^2), University of South Florida. "Using a Cyberlearning Environment to Enhance Critical Cybersecurity Education". $100,000. 2017. PI: Peter Clarke, Computer Science, FIU. Status: Completed.

Externally-Funded Projects as Investigator or role other than PI or co-PI

F.13 I: "Post-Occupancy Engagement: Exploring Augmented Reality Technology as a Tool for Assessing and Enhancing Effectiveness of Building Design Strategies." $9,989. Awarded by American Society of Interior Designers (ASID). PI: Leah Scolere, Interior Design, CSU. 10/10/2019 − 12/30/2021. PI: Leah Scolere, Interior Design, CSU. Use of funds: 50% of award will be used for a Computer Science student. Status: Completed.

F.14 I: "Florida Consortium of Metropolitan Research Universities, Summer Grant". $3,000. 2016. Status: Completed.

F.15 I: "IUCRU CAKE additional membership fees from OverIT (Italian-based company)". $3,000. June, 2016. Status: Completed.

F.16 I: "IUCRU CAKE membership fees from OverIT (Italian-based company)". $5,000. June, 2016. Status: Completed.

F.17 I: "IUCRU CAKE membership fees from Polymer Braille Inc". $5,000, June, 2016. Status: Completed.

Externally-Funded Gifts, Donations, or In-kind Contributions

G.1 HP. 2 HP Omnicept HP Reverb G2 Omnicept Edition. (2 x $1249). $2498. 2021.

G.2 Logitech. 3 VR Ink Pilot Edition. (3 x $750). $2250. 2021.

G.3 Boettcher Foundation, $500.00 gift to Francisco R. Ortega for Virtual Reality Soccer for Concussions. 2019.

Externally-Funded Pending Projects as PI

W.1 CSU PI: NSF. "Collaborative Research: CCRI: New: Open Reality Lab". $1,500,000. CSU share: $602,000. (CSU is not the lead institution). August 2022 − July 205. Submitted: 2022.

W.2 PI: NSF IIS HCC. "CAREER: HCC: Augmented Reality Multimodal Interaction Techniques for Immersive Analytics". $550,000. August 2022 – July 2027. Submitted: 2021.

W.3 PI: NSF. "NRT-FW-HTF: Virtual Pathways: An Interdisciplinary Approach to Diversifying Research Training of Extended Reality (XR) Technologies to Optimize the Future-of-Work". $3,000,000. August 2022 – July 2027. Submitted: 2021.

Internally-Funded Awards

R.1 co-PI: Francisco R. Ortega. VetVR Virtual Reality for Veterinarians. CSU's OVPR CIP program (3 year program) $196,076. PI: Pedro Boscan. 2020–2023 (Dr. Ortega's role ended in August 2021).

R.2 PI: Francisco R. Ortega. Library award to build open-source content for human-computer interaction. $4,000. 2020.

R.3 I: "Development of VR Applications for Education and Training". $18,117. Awarded by Provost Miranda, Digital Learning Initiative. 01/07/2020 – 06/30/2021. PI: Pedro Boscan, Veterinary School, CSU. Status: Completed.

R.4 I: "Support for Veterinary VR Application", $24,000. Awarded by College of Veterinary Medicine & Biomedical Sciences (CVMBS) IT governance. Partial salary for VR Developer. 2019. PI: Pedro Boscan, Veterinary School, CSU. Status: Active.

R.5 PI: CSU Graduate School. Student Recruitment Mini-Grant. "UTEP Recruitment to CSU"$500. Awarded Nov, 2019.

R.6 PI: OVPR Special Research Award. $26,644. Awarded Nov, 2019.

R.7 CSU Cybersecurity Center. Created a course, Introduction to Digital Forensics. One month salary for. $12,000 (including fringe). Summer 2019.

R.8 PI: CSU Graduate School. Student Recruitment Mini-Grant. "FIU Recruitment to CSU"$500. Awarded Nov, 2018.

R.9 I: FIU. Miami-Dade Age-Friendly Mini-Grant 2018. $2,500. Awarded Aug, 2018.

Internally-Funded Pending Awards

P.1 PI: Francisco R. Ortega. Research Infrastructure. CSU's OVPR Quaterly. January 2022. $16,000.

Un-Funded Projects as PI or coPI

U.1 ONR YIP. PI: Augmented Reality Interaction Techniques Using Microgestures. %510,000. August 2022 – July 2025. Submitted: 2021.

U.2 DARPA. co-PI: Fine-grained Learning of Organizational Workflows (FLOW). $748,559. January 2022 – August 2023. Submitted: 2021

U.3 DARPA. co-PI: PEGASUS: Perceptually Embodied Guidance with Awarenesss for Sharing Understanding and Skills. $4,000,000. August 2021 – July 2026. Submitted: 2021.

U.4 co-PI: An Integrated Virtual Reality, Mindfulness, and Personalized Normative Feedback Intervention to Address Rural Youth Substance Use. $654,908.59.. HHS-NIH-National Institutes of Health. July 1, 2021 – June 30, 2024. PI: Samantha M Brown. Submitted: 2020.

U.5 co-PI: Evaluating Neural Underpinnings of Multitasking Deficits and Developing an Innovative Treatment Protocol for Mild Traumatic Brain Injury. $179,471.79. June 1, 2021 – May 31, 2024. Edward Mallinckrodt, Jr. Foundation. PI: Jaclyn Stephens. Submitted: 2020.

U.6 co-PI: Virtual Reality Symphony as a Non-Pharmacological Intervention to Promote Cognition and Stress Management in Older Adults and Caregivers. HHS-NIH-National Institutes of Health. $412,092.79. May 1, 2021 – April 30, 2023. PI: Entered By: Meara H Faw. Submitted: 2020.

U.7 co-PI: Collaborative Experiences in Augmented Reality to Teach Invisible Physics with Applications in Civil Engineering. NSF RETTL. July 1, 2021 – June 30th, 2024. PI: Yanlin Guo. Submitted: 2020.

U.8 co-PI: How Environmental Changes Affect Physical Activity: Virtual Reality Randomized Trials. HHS-NIH-NCI-National Cancer Institute. $1,820,683.55. September 1, 2020 – August 31, 2025. PI:Dan Graham. 2020. Submitted: 2020.

U.9 PI: "N202-133 Multimodal Interaction Technologies to Support Small Unit Leaders via Fused Augmented Realities User Interface (FAR UI)" $44,000 with additional option for $31,000 (Total of $75,000). SBIR Phase I with VRR via ONR. Submitted: July, 2020.

U.10 PI: "CHS: Small: Understanding Gesture and Speech User Behavior in Augmented Reality." $498,292. NSF 19-589 IIS CHS. Submitted: 11/13/2019.

U.11 co-PI: "Development of Virtual Reality to Train, Teach and Simulate Veterinary Practice (phase anesthesia)". $74,997. Colorado Office of Economic Development and International Trade. Submitted: 2019.

U.12 co-PI: "Development of Virtual Reality to Train, Teach and Simulate Veterinary Practice (phase anesthesia)". $75,000. Lunch Pad, CSU Startup. Submitted: 2019.

U.13 co-PI: "Development of a Virtual Reality to Train, Teach and Simulate Veterinary Practice (Phase Anesthesia)". $100,954. American Kennel Club Canine Health Foundation, Inc. Submitted: 2019.

U.14 co-PI: "Select Schema as Prediction of Events (SHAPE)" with Brandeis University. $1,199,383. DARPA. Submitted: 2019.

U.15 PI: OVPR CSU's Quarterly. "Multidisciplinary Approach to Realtime Decision Aiding". $100,000. Submitted January, 2019.

U.16 PI: NSF IIS 18-570 – "CHS: Small: Alice is not Bob! Accounting for Individual Preferences While Carrying Out User Elicitation Studies". $499,937. 2018. Submitted Nov. 15, 2018.

U.17 PI: NSF IIS 18-570 – "CCHS: Small: Multi-modal User Interaction in Augmented Reality for Human-Agent Communication". $499,403. 2018. Submitted Nov. 15, 2018.

U.18 PI: Amazon. "The Invisible Computer: Interacting with Alexa using Gesture and Speech". $80,000 plus $20,000 in AWS credit. Submitted September, 2018.

U.19 PI: Sloan. "Gesture and Speech User-Centric Recognition for Diverse Backgrounds". $130,000. Submitted September, 2018.

U.20 PI: Dean's Faculty Support Program, Fall 2018. "Improving Diversity in Computer Science". %10,000. Submitted November, 2018.

U.21 PI: Entertainment Software Association Foundation. "Computer Science Gaming to Improve Self-Efficacy and Awareness of this Domain". $50,000. Submitted July 2018.

U.22 PI: Robert Wood Johnson Foundation , AI Health Challenge. "BioBrace: A Biometric Wrist Monitor for Mitigation of Opioid Usage for Recovering Addicts". $50,000. Submitted June 2018.

TALKS

Keynotes

1. **Ortega, F.** "Augmented Reality Multimodal Interaction Techniques for Immersive Analytics". At *Embodied Mathematical Imagination and Cognition: Professional Development for Undergraduate Mathematics Instructors.* NSF-DUE, Grant #1835409. Septemeber 26, 2021. Fort Collins, Colorado.

2. **Ortega, F.**, "Immersive Analytics and the Quest for the General-Purpose Augmented Reality System". At *University of Nebraska at Omaha Workshop on XR.* February, 26, 2021.

Invited Talks

3. **Ortega, F.**, "Multi-Modal User Interaction: Gesture + Speech using Augmented Reality Headsets". At *University of Texas at El Paso (UTEP).* Invited by Dr. Ann Gates. February 28, 2020.

4. **Ortega, F.**, " Multi-Modal User Interaction: Gesture + Speech using Augmented Reality Headsets.". At *University of Colorado at Boulder (CU).* Invited by Dr. Danielle Szafir. January 29, 2020.

5. **Ortega, F.**, "The Future of Interactive Computing." At *Fort Collins Museum of Discovery.* Invited by Mrs. Shannon Quist and Mr. Ben Gondrez. December 12, 2019.

6. **Ortega, F.**, "Gesture Elicitation and Recognition." At *Universidad de los Andes*, Invited by Dr. Pablo Figueroa, Associate Professor. September 6, 2019.

7. **Ortega, F.**, "Opportunities at Colorado State University for Undergraduate and Master Students." At *Florida International University*, Invited by Dr. Ram Iyengar, Director, FIU SCIS. October 12, 2018.

8. **Ortega, F.**, "How to Prepare for a Job in Academia and Opportunities at Colorado State University." At *Florida International University*, Invited by Dr. Ram Iyengar, Director, FIU SCIS. October 12, 2018.

9. **Ortega, F.**, "Cyber Security – Methods and Latest Attacks." At *Universidad Tecnologica de Honduras*, Invited by Ruben Fernandez, July 28, 2018 (Remote via Skype).

10. **Ortega, F.**, "Towards 3D navigation Using Multi-Touch Displays." At *University of Florida (Computer Science)*. Invited by Dr. Lisa Anthony. Gainesville, FL, 2015.

11. **Ortega, F.**, "Towards 3D Navigation using Multi-Touch." In *McKnight Yearly Fellowship Meeting*, Tampa, FL, 2014.

12. **Ortega, F.**, "Feature Extraction for Multi-Touch." In *McKnight Fellowship* at FIU, Miami, FL, January 23rd, 2014.

13. **Ortega, F.**, "3D Navigation with Commodity Devices and the Formalization of Multi-Touch Language." At *University of Leeds*, Colloquium Friday Series. Invited by Dr. Roy Ruddle. Leeds, England, October 18, 2013.

14. **Ortega, F.**, "Motivating Young Minds: Computer Science and Human-Computer Interaction." Guest for Career Day at W.R Thomas Middle School, Miami, FL, 13001 SW 26 Street, MIAMI, FL 33175, May 2nd, 2012.

Invited Panels

15. Williams , T., Moon, D., Paulius, D., **Ortega, F.** (discussants), and Simmonds, D. (discussant), "A Glimpse at the Intelligent Robots of Tomorrow" in *McKnight Mid-Year Research & Writing Conference*, Tampa, FL. February 25, 2017.

Conference Courses and Tutorials

16. Ortega, F., Williams, A.[†] and Garcia, J.[†]. " Multi-Modal Gesture Elicitation Methodology for Children". June 18, 2020 (14:00-22:00 BST), https://www.cs.colostate.edu/ElicitationCourse.

Conference Talks (Refereed)

17. **Ortega, F.**, "Multi-modal Interaction: Gesture+Speech." At *2019 CMD-IT Academic Career Workshop*, Houston, TX. May 16, 2019.

18. **Ortega, F.**, "Selection and Manipulation Whole-Body Gesture Elicitation Study In Virtual Reality." At *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Workshop on Novel Input Devices and Interaction Techniques (NIDIT)*, Osaka, Japan, 2019. March 24, 2019.

19. **Ortega, F.**, "CubeVR: Digital Affordances for Architecture Undergraduate Education using Virtual Reality." At *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Workshop on Novel Input Devices and Interaction Techniques (NIDIT)*, Osaka, Japan, 2019. March 23, 2019.

20. **Ortega, F.**, "Hand Tracking Interface for Virtual Reality Interaction based on MARG sensors." At *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR), Workshop on Novel Input Devices and Interaction Techniques (NIDIT)*, Osaka, Japan, 2019. March 24, 2019.

21. **Ortega, F.**, "Towards Multi-Modal Interaction with Interactive Paint." In *2018 HCI-International*. Invited session: Spatial User Interaction Beyond the Mouse, Las Vegas, NV, 2018.

22. **Ortega, F.**, "The Tabletop is dead. Long Live the Tabletop!". In *The Disappearing Tabletop: Social and Technical Challenges for Cross-Surface Collaboration* workshop on Interactive Surfaces and Spaces (ISS '17). Brighton, United Kingdom. 2017.

23. **Ortega, F.** and Tarre, K., "Gesture Elicitation for 3D Travel via Multi-Touch and Mid-Air Systems for Procedurally Generated Pseudo-Universe." In *2017 IEEE Symposium on 3D User Interfaces (3DUI)*, Los Angeles, CA, March, 2017.

24. **Ortega, F.**, "Towards a 3D Virtual Programming Language to Increase the Number of Women in Computer Science Education." In *2017 IEEE Virtual Reality Workshop on K-12 Embodied Learning through Virtual & Augmented Reality (KELVAR)*, Los Angeles, CA, March 2017.

25. **Ortega, F.**, "Smart Learning Desk: Towards an Interactive Classroom." In *IEEE Virtual Reality 2016 Workshop on K-12 Embodied Learning through Virtual & Augmented Reality*, Greenville, SC, March 19, 2016.

26. **Ortega, F.**, "GyroTouch: Wrist Gyroscope with a Multi-Touch Display." In *HCI International 2015*, Los Angeles, CA, August, 2015.

27. **Ortega, F.**, "PeNTa: Formal Modeling for Multi-Touch Systems Using Petri Nets." In *HCI International 2014*. Crete, Greece, June, 2014.

Poster Fast-Forwards Talks (Refereed)

28. **Ortega, F.**, "Selection and Manipulation Whole-Body Gesture Elicitation Study In Virtual Reality." In *2019 IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*, Osaka, Japan. March, 2019.

29. **Ortega, F.**, "Towards first person gamer modeling and the problem with game classification in user studies." In *Virtual Reality Software and Technology (VRST '18)*. Poster demonstration only (no fast-forward talk). Tokyo, Japan, Nov. 29, 2018.

30. **Ortega, F.**, "PostureMonitor: Real-Time IMU Wearable Technology to Foster Poise and Health." In *HCI International 2015*. Los Angeles, CA, Aug. 2015.

31. **Ortega, F.**, "TAMGeF: Touch-midAir-Motion Framework for Spatial Input." In *ACM Symposium on Spatial User Interaction*, (Fast Forward). Los Angeles, CA, Aug. 2015.

32. **Ortega, F.**, Poster Presentation. "Exploring Modeling Language for Multi-Touch Systems Using Petri Nets." In *ACM Interactive Tabletop and Surfaces* (ITS '13), St. Andrew, Scotland. 2013.

33. **Ortega, F.**, Poster Presentation and Fast-Forward, "Augmenting Multi-Touch with Commodity Devices." In *CM Symposium on Spatial User Interaction* (SUI '13), Los Angeles, CA, 2013.

34. **Ortega, F.**, Poster Presentation and Fast Forward, "Poster: Real-Time Gesture Detection for Multi-Touch Devices." In *IEEE 8th Symposium on 3D User Interfaces* (3DUI '13), Orlando, FL, Mar. 16th, 2013.

Research Demonstrations (Refereed)

35. Raikwar, S.[†]and **Ortega, F.**, "Demo: Assessing Sports Related Concussion in Soccer Players Using Immersive VR Soccer." At *in IEEE VR and 3DUI 2020*, Atlanta, GA, USA. 2020. March, 2020. Virtual.

36. **Ortega, F.**, "[DEMO] CircGR: Interactive Multi-Touch Gesture Recognition using Circular Measurements". Demonstrated Demo in *Interactive Surfaces and Spaces (ISS '17)*. Brighton, England. 2017.

Research Demonstrations (Invited)

37. **Ortega, F.**, Game Changers: NUILAB's Virtual and Augmented Reality Demos. In *Fort Collins Museum of Discovery*. November 3, 2019.

38. Williams, A. and **Ortega, F.**, Dual NUILAB Presentation with Demo. In *Fort Collins Museum of Discovery*. December 12, 2019.

39. Boettcher Foundation Trustees Learning Track VR/AR Research Demo. Hosted by Colorado State University. September 6, 2019.

40. **Ortega, F.**, Boettcher Foundation VR/AR Presentation. Hosted by OVPR in the Richardson Design Center, CSU. June 7, 2019.

41. NUILAB. MST Day. In *Colorado State University*. October 3, 2019.

42. Williams, A. and **Ortega, F.**, Dual NUILAB Presentation with Demo. In *Fort Collins Museum of Discovery*. December 12, 2019.

43. NUILAB. MST Day. In *Colorado State University*. October 11, 2018.

Internal Departmental, Guest Lectures, and University-Wide Talks/Events

44. **Ortega, F.** and Williams, A., CS 692, 3 week rotations. Three lectures. Introduction to NUILAB, Multimodal Interaction, and Immersive Analytics. Fall 2020.

45. **Ortega, F.**, Virtual Reality Micro Lecture for Summer Engagement Task Force (welcoming new students). 10 participants. July 31, 2020.

46. **Ortega, F.**, NUI LAB Tour and Demonstrations. Jan 23, 2020.

47. **Ortega, F.**, "HCC Concentration and AR/VR Technologies." Virtual Choose CSU for High School students. 20 participants. May, 2020.

48. **Ortega, F.**, NUILAB Tour, Demonstration, and Talk. Choose CSU (Parents and High School Students). 65 Participants. February 1, 2020.

49. **Ortega, F.**, NUILAB Tour and Demonstration. Compass School of Fort Collins (Middle School Students). 15 Participants. December 11, 2019.

50. **Ortega, F.**, NUILAB Tour and Demonstration. Choose CSU (Parents and High School Students) 60 Participants. December 7, 2019.

51. **Ortega, F.**, Virtual and Augmented Reality talk for Girls Who Code, CSU. Invited by Ariana Mims. December 2, 2019.

52. **Ortega, F.**, Guest Lecture: Augmented Reality and Networking. Invited by Dr. Joe Gersch. CS 457. October 3, 2019.

53. **Ortega, F.**, "Gestures and Multi-Modality, Natural User Interaction Lab". CS Faculty Rapid-Fire Presentations of Current Research. September 30, 2019.

54. **Ortega, F.**, "Gestures and Multi-Modality." At *Computer Science Department.* BMAC Rapid Talk. Hosted by Louis-Noel Pouchet. September 9, 2019.

55. **Ortega, F.**, NUILAB Tour and Demonstration. Incoming CSU students and under represented student populations in STEM. Early Start Freshmen. 40 participants. August 20, 2019.

56. **Ortega, F.**, NUILAB Tour and Demonstration. Middle School Girls STEM Camp. 12 participants. June 19, 2020.

57. **Ortega, F.**, NUILAB Tour and Demonstration. Middle School STEM Camp. 20 participants. June 12, 2020.

58. **Ortega, F.**, NUILAB Tour and Demonstration. Incoming CSU students and under represented student populations in STEM. Early Start Freshmen. 40 participants. August 20, 2019.

59. **Ortega, F.**, "Immersive User Interfaces: Driving with Augmented Reality." At *Energy Institute, Colorado State University.* Presentation for Colorado Department of Transportation (CDOT). Invited by Dr. Bradley Thomas, Associate Professor in Mechanical Engineering, CSU. January 30, 2019.

60. **Ortega, F.**, Choose CSU Presentation about Human-Computer Interaction (Parents and High School Seniors). 42 participants for NUILAB tour and 28 participants for presentation. April 6, 2019.

61. **Ortega, F.**, Choose CSU (Parents and High School Seniors). NUILAB Tour. 60 participants. February 7, 2019.

62. **Ortega, F.**, Choose CSU Presentation about Human-Centered Computing. 45 Participants for NUILAB tour and 35 for presentation. February 2, 2019.

63. **Ortega, F.**, "Gesture User Interfaces: Towards the Invisible Computer in 10 Minutes", in *ISTEC*. 10-minute presentation. Oct. 3, 2018.

64. **Ortega, F.**, "Gesture User Interfaces: Towards the Invisible Computer – Rapid Talk", in *Rapid Talk, Graduate Degree in CSU,* Department of Computer Science, CSU. Nov. 7, 2018.

65. **Ortega, F.**, "Gesture User Interfaces: Towards the Invisible Computer", in *Graduate Seminar Talk*, Department of Computer Science, CSU. Sept. 11, 2018.

66. **Ortega, F.**, "Gesture User Interfaces: Towards the Invisible Computer!", in *Freshmen Seminar Talk CS CSU*, Sept. 11, 2018.

67. **Ortega, F.**, "3D Navigation via 2D Multi Touch Surfaces." In *FIU CS PhD Student Seminars*, Miami, FL, Apr. 12th, 2012.

68. **Ortega, F.**, "Looking Ahead: A Case for 3D User Interfaces." Guest Speaker for Florida International University, Software Engineering Course, Miami, FL, Mar. 27th, 2012.

69. **Ortega, F.**, "Natural User Interfaces in 3D Navigation." Guest Speaker Florida International University for Computer Graphics, Miami, FL., Feb. 26th, 2012.

RESEARCH INTERESTS

Dr. Ortega's research areas are located within 3D User Interfaces, which are part of Human-Computer Interaction. His primary work is in Augmented Reality (AR) and Virtual Reality (VR).

Broadly speaking, his research has focused on multimodal and unimodal interaction (gesture-centric), which includes gesture recognition and elicitation (e.g., a form of participatory design). His main research area focuses on improving user interaction by (a) multimodal elicitation, (b) developing interactive techniques, and (c) improving augmented reality visualization techniques. The primary domains for interaction include immersive analytic, assembly, Navy use cases, and collaborative environments using augmented reality headsets. His secondary area of research concentrates in AR output interface widgets and the trade-offs between information access cost and clutter. Additional areas of interest include human-computer artificial intelligence, adaptive user interfaces, and improving Computer Science Education using AR/VR.

INTERDISCIPLINARY SCHOLARSHIP

- Dr. Ortega is currently part of CSU's Human-Factors group. This group brings Psychology, Business, and Computer Science together. They concentrate on improving human-decision making, in particular under uncertain conditions. The primary source of funding for this group has been the Office of Naval Research. Collaborators include Dr. Chris Wickens, Ben Clegg, and Charles "Cap" Smith.

PATENTS

AWARDED PATENTS

II.1 **Francisco Ortega**, Jules Calella, Naphtali Rishe, S.S. Iyengar. Three Dimensional Touch Conductive Fabric. Publication No. US 20190391683A1. Application No. 16015801. Filed: June 22, 2018. Publication Date: December 26, 2019. Date of Patent: Feb 02, 2021. US10908745B2.

II.2 **Francisco R. Ortega**, Naphtali Rishe, and Armando Barreto. Wearable Device and Methods of Using The Same. Patent No: US 10,806,375 B2. Date of Patent: Oct 20, 2020. Application No. 15/585,395. Filed: May 3, 2017.

II.3 **Ortega, F.**, Rishe, N., and Barreto, A., Gesture Discernment and Processing System. Patent No.: US 9,886,190 B2. Date of Patent: Feb. 6, 2018. US Utility Patent filed November 28th, 2014, USPS Application Number 20160091977, publication date March 31st, 2016.

II.4 Barreto, A., Rishe, N., **Ortega, F.**, O-Larnnithipong, N., VRT: Virtual Round Table. Patent No.: US 9,900,555 B1, Date of Patent: Feb. 20, 2018. Disclosed to FIU, January, 2017.

APPLICATIONS & DISCLOSURES

A.1 Raikwar, A. (40%), **Ortega, F.** (30%), Stephens, J. (40%). Title: Virtual Reality Soccer for Evaluating Return-to-Play Readiness in Athletes with Concussion. Disclosure: 10/21/2019

A.2 Stephens, J. (40%), **Ortega, F.** (30%), Malott, A. (15%), and Youseff, K. Colorado State University. Invention Id: INV19-060. Title: Virtual Reality for Sports-Related Concussion Evaluation. Disclosure approved: 3/14/2019.

A.3 Flack, J. (49%), Johnston, D. (49%), **Ortega, F.** (1%), and Ray, Indrakshi (1%). Disclosure: 12/5/2018. Submitted: 5/7/2019. Title: HomeFlow: Using Dynamic Visualization of Home IoT Traffic to Intuitively Understand and Defend Home Networks.

SECTION 3: Evidence of Teaching and Advising Effectiveness

TEACHING

Curriculum Development

Dr. Ortega developed two courses in the area of Human-Computer Interaction. This includes one graduate course (CS 567, 3D User Interfaces) and cross-listed undergraduate course (3xx, Mixed Reality Design). I also provided a series of changes for the human-centered computing

(HCC) concentration for undergraduate students. In addition, Dr. Ortega modified the human-computer interaction (CS 464) to allow online students and modify curriculum (starting Spring 2021). Dr. Ortega co-developed CS462 under the leadership of Dr. Blanchard along with Drs. Beveridge and Krishnaswamy.

Proposed Courses

Proposed: **Fall 2018**	**CS 567**	3D User Interfaces
Status: Approved	4 credits	Graduate
Proposed: **Fall 2019**	**CS 310H/IDEA 310H**	Mixed Reality Design
Status: Approved	3 credits	Undergraduate
co-Proposed: **Spring 2021**	**CS 462**	Virtual Worlds
Status: Approved	3 credits	Undergraduate

Courses: Colorado State University

NOTE: CS 567 may appear below another class because when it is not offered, a student may be allowed to take it with the professor's permission. If this is the case, the student watches the video from a previous semester. This is available to selected students that need the material for their research given the class is offer once every other year.

Spring 2021	**CS 464**	Principles of Human-Computer Interaction
	4 Credits	Enrollment: 72 in class and 18 online. Undergraduate Capstone
		CS 567 3D User Interfaces (Restricted Access)
		4 Credits. Enrollment: 1 (No class lectures)
Fall 2021	**CS 567**	3D User Interfaces
	4 Credits	Enrollment: 18 (in-class) and 3 (online) – Graduate Course
Spring 2021	**CS 464**	Principles of Human-Computer Interaction
	4 Credits	Enrollment: 41 in class and 13 online. Undergraduate Capstone
Fall 2020	**CS/IDEA 310H**	Mixed-Reality Design
	3 Credits	Enrollment: 26 (Hybrid)
	Student(s)	CS/IDEA: 12/9; CS/IDEA (online):4/1
		CS 567 3D User Interfaces (Restricted Access)
		4 Credits. Enrollment: 2 (No class lectures)
Spring 2020	**CS 464**	Principles of Human-Computer Interaction
	4 Credits	Enrollment: 65 – Undergraduate Capstone
Fall 2019	**CS 567**	3D User Interfaces
	4 Credits	Enrollment: 15 (in-class) and 7 (online) – Graduate Course
Spring 2019	**CS 464**	Principles of Human-Computer Interaction
	4 Credits	Enrollment: 46 – Undergraduate Capstone
Fall 2018	**CS 457**	Computer Networks and the Internet
	4 Credits	Enrollment: 56 (in-class) and 4 (online) – Undergraduate Elective

Additional Courses: Colorado State University

Fall 2021	**CS 692**	Graduate Seminar
	1 Credit	Enrollment: 49
	Student(s)	Guest instructor: 3 weeks NUI
Fall 2021	**CS 695**	Graduate Ind. Studies
	4 Credit	Enrollment: 1
	Student(s)	Jacinda Li
Fall 2021	**CS 699**	Research Seminar in Computer Science
	7/2 Credits	Enrollment: 2 – Graduate Master Thesis
	Student(s)	Domenick Mifsud and Shannon Ourada
Fall 2021	**CS 793**	Research Seminar in Computer Science
	4 Credits	Enrollment: 1 – Graduate Research Course
	Student(s)	Xiaoyan Zhou
Fall 2021	**CS 799**	Graduate Doctoral Thesis
	13/1/5/1 Credits	Enrollment: 3 – Doctoral Dissertation
	Student(s)	Adam Williams, Aditya Raikwar, Zahra Borhani, Xiaoyan Zhou
Fall 2021	**CS 495**	Independent Studies
	4 Credits	Enrollment: 1 – Undergraduate Research Student
	Student(s)	Andrew Lyon
Fall 2021	**CS 498**	Research Credits
	2/1 Credits	Enrollment: 2 – Undergraduate Research Student
	Student(s)	Ethan Gangster, Alex Karduna
Summer 2021	**CS 498**	Research Credits
	2 Credits	Enrollment: 1 – Undergraduate Research Student
	Student(s)	Dan Rehberg
Spring 2021	**CS 695**	Graduate Ind. Studies
	1 Credit	Enrollment: 1
	Student(s)	Jacinda Li
Spring 2021	**CS 699**	Research Seminar in Computer Science
	4 Credits	Enrollment: 1 – Graduate Master Thesis
	Student(s)	Adam Williams
Spring 2021	**CS 793**	Research Seminar in Computer Science
	4 Credits	Enrollment: 1 – Graduate Research Course
	Student(s)	Zhou, Xiaoyan
Spring 2021	**CS 799**	Graduate Doctoral Thesis
	10/14/1 Credits	Enrollment: 3 – Doctoral Dissertation
	Student(s)	Adam Williams, Aditya Raikwar, Zahra Borhani
Spring 2021	**CS 498**	Research Credits
	1 Credit	Enrollment: 1 – Undergraduate Research Student
	Student(s)	Rachel Master
Fall 2020	**CS 695**	Graduate Ind. Studies
	4 Credit	Enrollment: 1
	Student(s)	Student: Parisa Farhadi (Journalism)
Fall 2020	**CS 692**	Graduate Seminar
	1 Credit	Enrollment: 49
	Student(s)	Guest instructor: 3 weeks with CWC + 3 weeks NUI

Fall 2020	**CS 699**	Research Seminar in Computer Science	
	3 Credits	Enrollment: 1 – Graduate Master Thesis	
	Student(s)	Vidya Gaddy	
Fall 2020	**CS 799**	Graduate Doctoral Thesis	
	5/13/18/18 Credits	Enrollment: 4 – Doctoral Dissertation	
	Student(s)	Williams, Rodriguez; Raikwar, Borhani	
Fall 2020	**CS 793**	Research Seminar in Computer Science	
	4 Credits	Enrollment: 2 – Graduate Research Course	
	Student(s)	Erik Ridd and Jarret Flack	
Fall 2020	**CS 498**	Research Credits	
	4 Credits	Enrollment: 1 – Undergraduate Research Student	
	Student(s)	Miguel Guerrero	
Spring 2020	**CS 699**	Research Seminar in Computer Science	
	7/1 Credits	Enrollment: 2 – Graduate Master Thesis	
	Student(s)	Zahra Faeze Borhani (7 Credits) and Aditya Raikwar (1 credit)	
Spring 2020	**CS 793**	Research Seminar in Computer Science	
	4 Credits	Enrollment: 2 – Graduate Research Course	
	Student(s)	Richard Gacia and Vidya Gaddy	
Spring 2020	**CS 799**	Graduate Doctoral Thesis	
	5 Credits	Enrollment: 1 – Doctoral Dissertation	
	Student(s)	Adam Williams	
Fall 2019	**CS 799**	Graduate Doctoral Thesis	
	1 Credit	Enrollment: 1 – Doctoral Dissertation	
	Student(s)	Adam Williams	
Fall 2019	**CS 699**	Graduate Master Thesis	
	9,5 Credits	Enrollment: 2 – Graduate Master Thesis	
	Student(s)	Aditya Raikwar (9) and Zahra Faeze Borhani (5))	
Fall 2019	**CS 498**	Research Credits	
	2 Credit	Enrollment: 1 – Undergraduate Research Student	
	Student(s)	Domenick Mifsud	
Fall 2019	**CS 793**	Research Seminar in Computer Science	
	4 Credits	Enrollment: 1 – Graduate Research Course	
	Student(s)	Student: Jason Garcia	
Summer 2019	**CS 498**	Research Credits	
	1 Credit	Enrollment: 1 – Undergraduate Research Student	
	Student(s)	Elinor Nethery	
Spring 2019	**CS 498**	Research Credits	
	1 Credit	Enrollment: 1 – Undergraduate Research Student	
	Student(s)	Vidya Gaddy	
Spring 2019	**CS 793**	Research Seminar in Computer Science	
	4 Credits	Enrollment: 3 – Graduate Research Course	
	Student(s)	Students: Aditya Raikwar, Adam Williams, and Zahra Faeze Borhani	
Fall 2018	**CS 793**	Research Seminar in Computer Science	
	4 Credits	Enrollment: 1 – Graduate Research Course	
	Student(s)	Adam Williams	
Fall 2018	**CS 295**	Independent Study	

1 Credit	Enrollment: 1 – Undergraduate Student
Student(s)	E.J. Lee

Courses: Florida International University

- **Supervised Research Instructor.** CIS 5910: Summer 2018 (one student), Spring 2018 (three students), Fall 2018 (one student), Summer 2017 (three students).

- **Instructor.** CNT 4713 – Net-Centric Computing: Summer 2018 (online), Spring 2018 (three sections, one of them online), Spring 2017 (two sections).

- **Instructor.** COP 4005 – Windows Programming for IT: Spring 2018 (online).

- **Instructor.** IDS 3917 (Junior), IDS 4818 (Senior) – Vertically Integrated Projects (Capstone): Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016.

- **Instructor.** IDS 2917 (Sophomore) - Vertically Integrated Projects: Spring 2018.

- **Instructor.** COP 4610 – Operating System Principles: Fall 2017, Fall 2016 (two sections).

- **Instructor.** COP 5725 – Principles of RDBMS (graduate): Fall 2017, Spring 2016 (co-instructor).

- **Instructor.** COP 4338 – Programming III (C language): Summer 2017, Summer 2016, Summer 2015 (C/C++), Spring 2015

- **Instructor.** COP 3337 – Programming II (Java): Summer 2017.

- **Instructor.** IDS 5993 - Vertically Integrated Projects Graduate: Spring 2017.

- **Instructor.** ECE 6803 – Advanced Digital Forensics (graduate): Spring 2017 (FEEDS online only), Spring 2016, Spring 2015.

- **Instructor.** ECE 4802 – Digital Forensics: Spring 2017 (FEEDS online and class), Spring 2016, Spring 2015.

- **Instructor.** COP 4610 – Operating System Principles (two sections): Fall 2016.

- **Instructor.** CNT 5416 – Practical Applied Security (graduate): Fall 2016.

- **Instructor.** TCN-6430 – Network Management and Control Standards (graduate). Fall 2016.

- **Instructor.** COP 4813 – Web Application Programming: Fall 2015 (ASP.NET C#), Spring 2016 (node.js).

- **Instructor.** ECE 6803 – Advanced Digital Forensics (graduate – fully online): Summer 2017,Summer 2016, Summer 2015.

- **Instructor.** EEL 5807 – Advanced Ethical Hacking (graduate – feeds online): Summer 2016, Summer 2015.

- **Instructor.** CGS 4854 – Website Management and Construction: Summer 2012 (Java).

- **Teaching Assistant.** COP 2210L – Programming I (Java): Spring 2012, Fall 2011, Summer 2011, Spring 2011, Fall 2010, Summer 2010.

- **Teaching Assistant.** CGS 2060L – Introduction to Microcomputers: Spring 2010.

- **Teaching Assistant.** CAP 5602 – Introduction to Artificial Intelligence: Spring 2009.

TEACHING AREAS

Beyond Dr. Ortega's areas of expertise, he is prepared to teach the majority of Computer Science Courses at an undergraduate and graduate level, including: Human-Computer Interaction, 3D User Interfaces, Virtual and Augmented Reality, Operating Systems, Databases, Programming, Data Structures, Fundamentals, Networking, Cyber-Security, Software Engineering, and Capstone projects, among others.

STUDENT and POST-DOCTORAL ADVISING (SUMMARY)

Post-Doctoral Summary – CSU

- Current Post-Doctoral (as of January 1st, 2022):

  ◇ Dr. Adam Williams. DARPA Post-Doctoral Fellow.
  ◇ Total: 1

Graduate Students Summary – CSU

- Current Graduate Advisees (as of Dec. 31st, 2021):

  ◇ Aditya Raikwar (Ph.D.), Zahra Faeze Borhani (Ph.D.), Xioayan Zhou (Ph.D.), Vidya Gaddy (Ph.D.), Richi Rodriguez (Ph.D.), Domenick Mifsud (M.S), and Jieqiong (Jacinda) Li (M.S.).
  ◇ (only 2021): Adam Williams (Ph.D., graduated), Shannon Ourada (M.S.).
  ◇ Current Students During 2021 (Total): 7+2 =9.

- Current Graduate Committee Memberships (excluding those chaired):

  ◇ Sachini Weerawardhana (Advisor: Darrell Whitely, Computer Science)
  ◇ Mitra Saptashwa (Advisor: Sangmi Pallickara, Computer Science).
  ◇ Paras Qadir Memon (Advisor: Chuck Anderson, Computer Science).
  ◇ Muhammad AlSharif (Advisor: Chuck Anderson, Computer Science)
  ◇ Colleen Patton (Advisor: Ben Clegg, Psychology).
  ◇ Nathan Herdener (Advisor: Ben Clegg, Psychology).
  ◇ Dhruva Patil (Advisor: Ross Beveridge)
  ◇ Total: 7.

- Former Ph.D. students

  ⋄ Dr. Adam S. Williams. Now DARPA Post-Doctoral Fellow.

  ⋄ Total: 1

- Former Master with Thesis Advisees

  ⋄ Adam Williams, concurrent with Ph.D. Spring 2021.

  ⋄ Vidya Gaddy. Now Ph.D. student at CSU. Summer 2021.

  ⋄ Aditya Raikwar. Now Ph.D. student at CSU. Summer 2020.

  ⋄ Zahra Faeze Borhani. Now Ph.D. student at CSU. Summer 2020.

  ⋄ Heting (Jane) Wang (M.S. Thesis) co-advised with Ross Beveridge. Now Ph.D. student at University of Florida.

  ⋄ Rahul Bangar (M.S. Thesis) co-advised with Ross Beveridge.

  ⋄ Total: 6

- Former Graduate Committee Memberships (excluding those chaired):

  ⋄ Shiyang Wu (M.S. ECE). Advisor: J. Ross Beveridge.

  ⋄ Mathew Dragan (M.S. CS Thesis). Advisor: J. Ross Beveridge.

  ⋄ Joseph Strout (M.S. CS Thesis). Advisor: J. Ross Beveridge.

  ⋄ Total: 3.

- Former Research Intern Advisees:

  ⋄ Logan Loi (Georgia (US), Georgia Tech), Summer 2020.

  ⋄ Erwan La Pluard (France, ENIB – Brest National School of Engineering), Spring 2020.

  ⋄ Auguste Cousin (France, ENIB – Brest National School of Engineering), Spring 2020.

  ⋄ Lucas Plabst (Germany, University of Wuerzburg). Fall 2019.

  ⋄ Prashast Sharma (India). Summer 2019.

  ⋄ Eric Ridd (Florida (US), New College of Florida). Summer 2019.

  ⋄ Total: 6. (3 in 2019 and 3 in 2020).

STUDENT ADVISING (CSU)

Ph.D. Directed Research

Σ.1 Aditya Raikwar, Ph.D. student. Computer Science, CSU. Fall 2020 – Present. Completed M.S. at FIU. Status: All courses completed. Research Exam Completed Fall 2021. Proposal Expected Fall 2022.

Σ.2 Zahra Faeze Borhani, Ph.D. student. Computer Science, CSU. Fall 2020 – Present. Completed M.S. at FIU. Status: All courses completed. Research Exam Completed Spring 2021. Proposal expected Spring 2022.

Σ.3 Xiaoyan Zhou, Ph.D. student. Computer Science, CSU. Fall 2020 – Present. Research Exam Expected Spring 2022.

Σ.4 Richi Rodriguez, Ph.D. student. Computer Science, CSU. Spring 2020 – Present. Research Exam Expected Spring 2022.

Σ.5 Jieqiong (Jacinda) Li, Ph.D. Computer Science, CSU. Spring 2022 – Present. Research Exam Expected Spring 2023.

Master Thesis Directed Research

Σ.6 Domenick Mifsud, M.S. candidate. Computer Science, CSU. Fall 2020 – Present.

CS Committee Member

E.1 Mitra Saptashwa, Ph.D. student. Computer Science, CSU. Advisor: Sangmi Pallickara. Fall 2018 – Present.

E.2 Paras Qadir Memon, Ph.D. student. Computer Science, CSU. Advisor: Chuck Anderson. Spring 2019 – Present.

E.3 Muhammad AlSharif, Ph.D. student. Computer Science, CSU. Advisor: Chuck Anderson.

E.4 Dhruva Patil. Ph.D. student. Computer Science, CSU. Advisor: J. Ross Beveridge. Fall 2019 – Present.

E.5 William Pickard. Ph.D. student. Computer Science, CSU. Advisor: J. Ross Beveridge.

E.6 Nada Alalyani. Ph.D. student. Computer Science, CSU. Advisor: Nikhil Krishnaswamy

E.7 Saptashwa Mitra. Ph.D. student. Computer Science, CSU. Advisor: Sangmi Pallickara

E.8 Michael Boyle. M.S. student. Computer Science, CSU. Advisor: Nate Blanchard

E.9 Sadaf Ghaffari. Ph.D. student. Computer Science, CSU. Advisor: Nikhil Krishnaswamy

Outside Committee Member

E.10 Colleen Patton. Ph.D. student. Psychology, CSU. Advisor: Ben Clegg.

E.11 Nathan Herdener. Psychology, CSU. Advisor: Ben Clegg.

E.12 John Phillips. Ph.D. student. Systems Engineering, CSU. Advisor: Erika E. Miller

E.13 Brandon Perry. Ph.D. student. Civil and Environmental Engr, CSU. Advisor: Yanlin Guo

E.14 Carl Thompson. Ph.D. student. Systems Engineering, CSU. Advisor: Steve Simske. Spring 2020 – Present.

E.15 Olurotimi Oguntola. Ph.D. student. Systems Engineering, CSU. Advisor: Steve Simske. Fall 2019 – Present.

E.16 Emmanuel Cao. Ph.D. student. Systems Engineering, CSU. Advisor: James Cale

E.17 Brendan Kelley. M.S. student. Journalism and Media Comm, CSU. Advisor: Michael Humphrey

Ph.D. Students (Former)

F.1 Adam S. Williams. Ph.D. Computer Science, CSU. Fall 2018 – Fall 2021. Now DARPA Post Doctoral Fellow.

Master Thesis Directed Research (Former)

F.2 Adam Williams, M.S. Computer Science, CSU. Fall 2018 – Spring 2021. Concurrent with Ph.D.

F.3 Vidya Gaddy, M.S. Computer Science, CSU. Fall 2019 – Summer 2021. Now Ph.D. student at CSU.

F.4 Aditya Raikwar, M.S. Computer Science, CSU. Fall 2018 – Summer 2020. Now Ph.D. student at CSU.

F.5 Zahra Faeze Borhani, M.S., Computer Science, CSU. Spring 2019 – Summer 2020. Now Ph.D. student at CSU.

F.6 Heting (Jane) Wang co-advised with Ross Beveridge. Fall 2018 – Summer 2020. Now Ph.D. student at University of Florida.

Master Research Initiation Directed Research (Former)

F.7 Jieqiong (Jacinda) Li, M.S. Computer Science, CSU. Spring 2020 – Fall 2021. Now Ph.D. student at CSU.

CS Committee Member (Former)

ϕ.1 Sachini Weerawardhana, Ph.D. student. Computer Science, CSU. Advisor: Darrel Whitley. Fall 2020 – Present.

ϕ.2 Zhisheng Xu. Ph.D. student. Computer Science, CSU. Advisor: Ross McConnell. Graduated. Fall 2021.

ϕ.3 Mathew Dragan, M.S. student, Computer Science, CSU. Advisor: J. Ross Beveridge. Spring 2019 – Summer 2020. Graduated.

ϕ.4 Joseph Strout, M.S. student, Computer Science, CSU. Advisor: J. Ross Beveridge. Fall 2019 – Summer 2020. Graduated.

ϕ.5 Rahul Bangar (M.S.) co-advised with Ross Beveridge. Fall 2020. Graduated.

ϕ.6 Rusha Lawande. M.S. student. Computer Science, CSU. Advisor: [todo]

Outside Committee Member (Former)

ϕ.7 Shiyang Wu, M.S. student, ECE. Advisor: J. Ross Beverdige. Fall 2019 – Spring 2019. Graduated.

Directed Undergraduate Research

μ.1 Ryan Blocker. Computer Science (B.S.). CSU. Fall 2021 – Present.

μ.2 Andrew Lyon. Computer Science (B.S.). CSU. Fall 2021 – Present.

μ.3 Alex Karduna. Computer Science (B.S.). CSU. Fall 2019 – Present.

μ.4 Ethan Holen. Computer Science (B.S.). CSU. Spring 2020 – Present.

μ.5 Amy Felix. Computer Science (B.S.). CSU. Fall 2020 – Present.

μ.6 Madeline Watts. Computer Science (B.S.). CSU. Fall 2020 – Present.

μ.7 Dan Rehberg. Computer Science (B.S.). CSU. Spring 2021 – Present.

μ.8 Rachel Master. Computer Science (B.S.). CSU. Spring 2021 – Present.

Former Directed Undergraduate Research (CSU)

Ψ.1 Ethan Ganster. Computer Science (B.S.). CSU. Spring 2021 – Fall 2021.

Ψ.2 Crispin Haro. Computer Science (B.S.). CSU. Fall 2020 – Summer 2021.

Ψ.3 Arysa Flores. Computer Science (B.S.). CSU. Fall 2020 – Spring 2021.

Ψ.4 Dominique Misfud. Computer Science (B.S.). CSU. Spring 2019 – Spring 2020. Now M.S. student at CSU.

Ψ.5 Kellyn Dassler. Computer Science (B.S.). CSU. Fall 2018 – Spring 2020.

Ψ.6 Ariana Mims. Computer Science (B.S.). CSU. Fall 2018 – Spring 2019. Now with Dr. Indrakshi Ray, IOT lab.

Former Directed High-School Interns (CSU)

The names are not in the summary because they were minors when they were summer interns.

- Summer 2019: 3 High-School students (3 males).

- Summer 2020: 1 High-School student (female).

Professional Workshops and Training

- NSF NRT Workshop. September 18, 2020. Provided information about the NSF graduate grants available.

- CAHSI. Building CISE Research Capacity at Hispanic-Serving Institutions Workshop. July 9–10, 2019. Travel award received.

- CMD-IT Academic Career Workshop, May 16–18, 2019. Travel award received.

- NSF Career Workshop at National Science Foundation. April 8–9, 2019.

- Colorado State University, Search Committee Search Training. February 11, 2019.

- NSF Career Preparation at Colorado State University (multiple meetings). Spring 2019.

- NSF Proposal Writing. Grant Training Center. Online. January 2019.

- NSF Computer Science New Faculty Workshop (Tenure-Track Session). UCSD. Aug. 5 to Aug. 7. 2018. Hotel and meals award received.

- Several teaching study (book) groups at FIU. This included *Effective Instruction for STEM Disciplines* and *Make it Stick*, among others. 2015-2017.

Description of Mentoring Activities (CSU)

Dr. Ortega holds weekly meetings with all of the students at CSU that are doing research under his supervision. He also has one-to-one meetings with Ph.D. students every week and as needed with M.S. students and undergraduate students. In addition, Dr. Ortega participates in the CS 793 (research course: Communicating with Computers) where his students along with the students supervised by Ross Beveridge, Bruce Draper, Nate Blanchard, and Nikhil Krishnaswamy attend. The CS 793 meetings are held weekly. Given the size of the group, Dr. Ortega now holds a NUILAB Paper Club with the specific theme of the lab. Activities during the meetings include paper presentations, project presentations, guidance about research, and planning, among others. Finally, whenever requested, he offers independent supervised research credits for undergraduate students.

Teaching Improvements (CSU)

After the NSF Workshop on teaching for new faculty that Dr. Ortega attended in August 2018, he has implemented new methodologies in the classroom. First, Dr. Ortega started using the iClicker to ask questions before providing the answer (or even at times) the actual information students need to answer. This has shown to provide an improved recall of concepts for students even when they don't get the correct answer. In addition, Dr. Ortega created a series of activities (including the iClicker) which were designed to improve learning. This includes online quizzes (with multiple retries), and hands-on labs, among others. Dr. Ortega called these activities because they are meant not as a way to evaluate the students but to instead accelerate student engagement. The students are in turn graded for participation after completing these activities. The participation grade is common in some classes and requires the student to complete the activities. In Spring of 2019, Dr. Ortega added mini-surveys to understand which concepts the students may find more difficult to understand. In Fall 2020, he removed the mini-surveys because they did not work with the layout his course.

With the experience gathered until Spring 2020, including the new COVID-19 reality, Dr. Ortega started to consider adding new techniques to his style and methods of teaching. CS 310H is hybrid course, and in the Spring of 2021, will be a brand-new CS 464 human-computer interaction designed course which uses a unified framework to teach (while keeping the theory in place). This is in response to feedback and experience gained over the years of teaching the materials presented in the course. While a few students do great with the option to implement in any language they want, the majority face a bigger challenge. Dr. Ortega will keep an option that allows freedom to the student while concentrating in a unified framework (e.g., WebXR).

CSU's ARVR Student Club

Dr. Ortega co-facilitates the ARVR Club where students of similar interest get together once a week to discuss topics, plan projects, and listen to presentations by them or other guests. Students from the club attended CSU's VR Hackathon (sponsored by the office of the vice-president of research). This included Ariana Mims, who won first place. The ARVR Club started in Fall 2018 and it is still active. Starting Fall 2020, due to COVID-19, all meetings are virtual.

CSU's VR Hackathon

Dr. Ortega is part of CSU's VR Hackthon committee and CSU's XR Symposium. During 2019, many of the students were recruited by Dr. Ortega and people invited to symposium from outside Fort Collins came at his invitation. Due to COVID-19, the Hackthon is likely to be run during Spring 2022.

Dr. Ortega also participated as a judge during the 2018 session. This platform, lead by the vice-president of research, allows students to come together and work on exciting projects. Some of these projects lead to research by CSU's faculty. During the 2018 session, Dr. Ortega invited 9 students from Florida International University to improve diversity and promote CSU. Students from AR/VR club also attended. He also recruited 8 students from his CS 457 course. Dr. Ortega's undergraduate research student Ariana Mims won first place in 2018. Most of the students Dr. Ortega recruited received awards including first, second, and third, and some smaller awards. This activity provides the ability to promote teaching and research during a 3-day event.

CSU's MST Day

Dr. Ortega's research lab continues to participate in the Math and Science Technology Day to promote Virtual Reality among 6th to 8th graders (October 3rd, 2019 and October 11th, 2018). This has been a great opportunity to promote STEM education to under-represented minorities.

CSU's Incoming Students Tour and CS activities

Dr. Ortega's research lab has always been present for the Computer Science department activities starting from Fall 2018.

STUDENT ADVISING (FIU)

Former Directed Master Research – non-Thesis (FIU)

Φ.1 Fernando De Zayas, M.S., Computer Science, Fall 2017 – Fall 2019.

Φ.2 Mathew Kress. Computer Engineering (M.S.). FIU. Fall 2016 – Fall 2018. Now at HELM Systems (creators of SoulKeeper VR).

Φ.3 Jules Calella. Electrical Engineering (M.S.). FIU. Fall 2016 – Spring 2018. Now at Microsoft Embedded. First Job: BioMagic VR as Embedded Engineer.

Φ.4 Ruben Balcazar. Computer Science (M.S.). FIU. Summer 2015 – Fall 2017. First job: Ultimate Software as Software Developer.

Former Directed Undergraduate Research (FIU)

Ψ.5 Fidel Hernandez. Computer Science (B.S.). FIU. Summer 2018 – Spring 2020.

Ψ.6 Catherine Angelini. Computer Science (B.S.). FIU. Spring 2018– Spring 2019. Now with Microsoft (recurring Internship).

Ψ.7 Diana Ugalde. Psychology (B.S.). FIU. Fall 2018 – Summer 2019. Now at FIU, Ph.D. in Psychology.

Ψ.8 Amanda Fernandez. Computer Science (B.S.). FIU. Fall 2018 – Spring 2019.

Ψ.9 Andy Pujol. Computer Science (B.S.). FIU. Summer 2018 – Spring 2019. Now at Royal Caribbean Cruise

Ψ.10 Edelmary Urdaneta. Chemistry (B.S.). FIU. Summer 2018 – Spring 2019.

Ψ.11 Joseph Medina. Computer Science (B.S.). FIU. Summer 2018 – Spring 2019.

Ψ.12 Arelys Alvarez. Computer Science (B.S.). FIU. Summer 2018 – Fall 2019.

Ψ.13 Vanesa Perez. Computer Science (B.S.). FIU. Summer 2018 – Spring 2019.

Ψ.14 Jason Garcia. Computer Science (B.S.). FIU. Spring 2018 – Summer 2019. Now at CSU's master program.

Ψ.15 Ciana Rogers. Computer Science (B.S.). FIU. Spring 2018 – Summer 2019.

Ψ.16 Cristina Villaroel. Computer Science (B.S.). FIU. Fall 2017– Fall 2019. Now at VISA (Denver, CO).

Ψ.17 Seidan Jamides. Computer Science (B.S.). FIU. Summer 2017 – Summer 2019.

Ψ.18 Pablo Mueller. Computer Science (B.S.). FIU. Summer 2017 – Summer 2018.

Ψ.19 Luis Averhoff. Computer Science (B.S.). FIU. Fall 2017 – Summer 2018.

Ψ.20 Lukas Borges. Computer Science (B.S.). FIU. Summer 2016 – Fall 2017.

Ψ.21 Maia Zock-Obregon. Psychology (B.S.). FIU. Spring 2016 – FALL 2016.

Ψ.22 Alain Galvan. Computer Science (B.S.). FIU. Spring 2015 – Summer 2017. First job: Marmoset (creator of Marmoset Toolbag) as Computer Graphics Developer.

Ψ.23 Jules Calella. Electrical Engineering (B.S.). FIU. Fall 2015 – Spring 2016. Now at Microsoft Embedded Development. First Job: Bio-Magic VR, Inc.

Ψ.24 Jonathan Bernal. Computer Engineering (B.S.). FIU. Summer 2016 – Summer 2017.

Ψ.25 Katherine Tarre. Statistics (B.S.). FIU. Summer 2016 – Fall 2016.

Ψ.26 Jason-Lee Thomas. Computer Engineering (B.S.). FIU. Summer 2015 – Fall 2016. First job: Citrix as Senior Software Developer.

Other Mentoring Activities (FIU)

- Capstone Senior Project, Computer Science, Spring 2015 - Present – Mentored over 30 students.

- Capstone Senior Design, Electrical and Computer Engineering, Spring 2015 - Present – Mentored over 40 students.

- Independent Studies, Summer 2016.

- Honors College Research, Fall 2015 – Spring 2017.

- VIP Supplemental Team, Spring 2016-Summer 2016 – Mentored 15 students.

SECTION 4: Evidence of Outreach/Service

SERVICE

Editor, Co-Editor, and Guest-Editor of Journals

- Guest Editor on Frontiers Journal on Multimodal Interaction for Single-User or Collaborative Environments. Status: Organizing and finding co-guest editors. Still in process.

Conference Committee Member Positions

- International Technical Program Committee Member Conference Papers Track, *IEEE Virtual Reality and 3DUI*, 2018 – 2022.

- International Program Committee Member *ACM Cumputer-Human Interaction Late Breaking Work* (LBW CHI'21).

- International Program Committee Member *IEEE International Symposium on Mixed and Augmented Reality*, (ISMAR '21).

- International Program Committee Member *ACM International Conference on Interactive Surfaces and Spaces* (ISS' 19), Daejeon, South Korea.

- International Technical Program Committee Member *ACM Symposium on Spatial User Interaction* (SUI '19), New Orleans, LA. 2019.

- International Technical Program Committee Member *ACM Symposium on Spatial User Interaction* (SUI '18), Berlin, Germany, 2018.

- International Technical Program Committee Member *ACM International Conference on Interactive Surfaces and Spaces* (ISS '17), Brighton, England, 2017.

- International Technical Program Committee Member *ACM Symposium on Spatial User Interaction* (SUI '17), Brighton, England, 2017.

- Technical Program Committee Member, *ACM Symposium on 3D User Interfaces* (3DUI '17), Los Angeles, CA, 2017.

- International Technical Program Committee Member, *ACM Symposium on Spatial User Interaction* (SUI '16), Tokyo, Japan, 2016.

Conference Committee Member Positions

- General Chair for *ACM Symposium on Spatial User Interaction* (SUI '21).

- Publicity Chair, *International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments (ICAT-EGVE) '20.* 2020.

- Chair for *IEEE VR Workshop on Distributed Interactive Systems for Collaboration Experiences* (DISCE '21), 2021.

- Poster Chair, *ACM Virtual Reality and Software Tools (VRST) '20.* Ontario, CA. 2020.

- Publicity Chair, *ACM Virtual Reality and Software Tools (VRST) '20.* Ontario, CA. 2020.

- Bidding Committee Member, *ACM Virtual Reality and Software Tools (VRST) '20.* 2020. Status: Won bid with General Chair Rob Teather.

- Publicity Chair, *International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments (ICAT-EGVE) '20.* 2020.

- Student Volunteer Chair, *IEEE International Symposium on Mixed and Augmented Reality (ISMAR) '20.*

- Co-Organizer Committee Member, *IEEE VR Second Workshop on Novel Input Devices and Interaction Techniques 2020* (NIDIT '20). Atlanta, GA. 2020.

- Co-Organizer Committee Member, *IEEE VR Fifth Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR '20), Atlanta, GA. 2020.

- Session Chair *ACM International Conference on Interactive Surfaces and Spaces* (ISS' 19), Daejeon, South Korea.

- Industry Chair *ACM Symposium on Spatial User Interaction* (SUI '19), New Orleans, LA. 2019. Obtained %5,000 dollar sponsorship.

- Co-Organizer Committee Member, *IEEE VR Workshop on Novel Input Devices and Interaction Techniques 2019* (NIDIT '19). Osaka, Japan. 2019.

- General Chair Committee Member, *IEEE VR Fourth Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR '19), Osaka, Japan. 2019.

- Co-Organizer Committee Member, *IEEE VR Third Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR '18), Reutlingen, Germany. 2018.

- Poster Judge Panel for *ACM Richard Tapia Celebration of Diversity in Computing*, 2017.

- Co-Organizer Committee Member, *IEEE VR Second Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR '17), Los Angeles, CA, 2017.

- Session Chair *ACM International Conference on Interactive Surfaces and Spaces* (ISS '17), Brighton, England, 2017.

- Session chair, 3D Interaction, *IEEE VR 3DUI, ACM Symposium on 3D User Interfaces*, (3DUI '17). 2017.

- Publicity Co-chair, *ACM Symposium on Spatial User Interaction* (SUI '17), Brighton, England, 2017.

- Publicity Co-chair, *ACM Symposium on 3D User Interfaces* (3DUI '17), Los Angeles, CA, 2017.

- Publicity Co-chair, *ACM Symposium on Spatial User Interaction* (SUI '16), Tokyo, Japan, 2016.

Journal and Conference Reviewer

- Journal Reviewer for *ACM International Conference on Interactive Surfaces and Spaces*, Summer Session 2021.

- Reviewer for *ACM Virtual Reality Tools and Software*, (VRST) 2021.

- Reviewer for *ACM Transactions on Computer-Human Interaction (TOCHI) Journal* 2020 – 2021.

- Reviewer for *IEEE Transactions on Visualization and Computer Graphics (TVCG).* 2017, 2018-2022.

- Journal Reviewer for *IEEE International Symposium on Mixed and Augmented Reality* Journal Papers, (ISMAR '21).

- Journal Reviewer for *IEEE International Symposium on Mixed and Augmented Reality* Journal Papers, (ISMAR '21).

- Reviewer for *IEEE VR Workshop on Distributed Interactive Systems for Collaboration Experiences* (DISCE '21), 2021.

- Reviewer for *IEEE Sensors Journal* 2014-2018, 2020.

- Reviewer for *IEEE Journal of Biomedical and Health Informatics.* 2014, 2018.

- Reviewer for *ACM Computer-Supported Cooperative Work and Social Computing.* 2020.

- Reviewer for *ACM Virtual Reality and Software Tools (VRST) '20, Poster Articles.* 2020.

- Reviewer for *Computer and Graphics.* 2018, 2020.

- Reviewer for *EuroVis.* 2020.

- Reviewer for *IEEE Virtual Reality and 3DUI Conference.* 2018–2022.

- Reviewer for *IEEE VR Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* 2017–2020, 2022.

- Reviewer for *ACM International Conference on Interactive Surfaces and Spaces* 2017–2020.

- *IEEE VR Workshop on Novel Input Devices and Interaction Techniques.* 2019–2022.

- Reviewer for *ACM CHI Conference on Human Factors in Computing Systems* (ACM CHI). 2018–2020.

- Reviewer for *ACM CHI Conference on Human Factors in Computing Systems – Late Breaking* (ACM CHI). 2019–2020.

- Reviewer for *ACM SIGCSE 2020.* Reviewed on 2019.

- Reviewer for *ACM Designing Interactive Systems 2019* (DIS '19). 2019-2020.

- Reviewer for *IEEE International Symposium on Mixed and Augmented Reality 2019* (ISMAR '19). 2019-2020.

- Reviewer for *ACM Intelligent User Interfaces 2019* (IUI '19). 2019.

- Reviewer for *ACM International Conference on Interactive Surfaces and Spaces.* 2016-2020.

- Reviewer for *ACM Richard Tapia Celebration of Diversity in Computing*, 2015–2019.

- Reviewer for *International Journal of Human-Computer Interaction*, Springer, 2018.

- Reviewer for *20th Symposium on Virtual and Augmented Reality (SVR).* Igauçco, Brazil, 2018.

- Reviewer for *13th International Symposium on Visual Computing*, Las Vegas, NV, 2018.

- Reviewer for *ACM Symposium on 3D User Interfaces.* 2017.

- Reviewer for *ACM Symposium on Spatial User Interaction* 2016-2018.

Other External Services

- Part of working group trying to developed NIDIT workshop into a symposium or conference. Work has been delayed due to COVID-19. 2020 – present.

Proposal Review

The following list is redacted for confidentiality.

- National Science Foundation. Review Panel. Major Research Instrumentation Program. NSF MRI. One day. 2020.

- National Science Foundation. Review Panel. IIS CHS. NSF Career proposals. 2019. Two days.

- National Science Foundation. Review Panel. CISE CCRI. CCRI planning proposals. 2019. Two Days

- National Science Foundation. Review Panel. Major Research Instrumentation Program. NSF MRI. One day. 2019.

Internal (CSU)

- University

  ◇ Office of Vice-President Research (OVPR), Virtual Reality Committee Member (2019–). Chair Liaison of the Virtual Reality Initiative.

  ◇ Office of Vice-President Research (OVPR), VR Hackathon (2019–) Committee Member.

  ◇ Office of Vice-President Research (OVPR), VR Symposium (2019–) Committee Member and Facilitator.

  ◇ Boettcher Foundation Trustees Learning Track VR/AR Research Demo. Hosted by Colorado State University. September 6, 2019.

  ◇ Boettcher Foundation VR/AR Presentation. Hosted by OVPR in the Richardson Design Center, CSU. June 7, 2019.

  ◇ VR Hackathon 2019 Recruiter.

  ◇ VR Hackathon 2018 Recruiter.

  ◇ VR Hackathon 2018 Judge.

  ◇ Participated in the ISTEC Advisory Board Fall 2018. This included facilitating the Virtual Reality sub-group.

- College

  ◇ Math and Science Technology Day. Fall 2019.

  ◇ Math and Science Technology Day. Fall 2018.

- Departmental Committes

  ◇ Computer Science Graduate Program Committee member, Fall 2019–present.

  ◇ Computer Science Operational Committee member, Fall 2019–present.

  ◇ Multiple events for CS recruitment including ChooseCSU in 2020 (see talks).

  ◇ Chair of Search Committee, Academic Success Coordinator, 2019–2020. Cancelled by Provost becuase of COVID-19.

- Departmental Committees

  ◇ AI Search Committee Member 2021-2022.

  ◇ Faculty Mentor for ARVR Student Club. 2018-present.

  ◇ Computer Science Graduate Program Committee member, Fall 2019–present.

  ◇ Computer Science Operational Committee member, Fall 2019–present.

  ◇ Multiple events for CS recruitment including ChooseCSU in 2020 (see talks).

  ◇ ACM Richard Tapia 2020 Scholarship Organizer for CSU. Organized students to provide access to ACM Tapia 2020. 12 students were sent from CSU using different funds.

⬦ ACM Richard Tapia Conference 2019. Hosted a booth for Colorado State University promoting Computer Science Program and providing support to our attending students. October, 2019.

⬦ Chair of Search Committee, Academic Success Coordinator, 2019–2020. Cancelled by Provost because of COVID-19.

⬦ Compass School for Fort Collins visit, 15 participants (middle school to high school). This included NUILAB tour and Demonstrations. December 11, 2019.

⬦ Choose CSU (CSU admission event for prospective students), 60 participants (parents and high school seniors). This included NUILAB tour and demonstrations. December 7, 2019.

⬦ Girls Who Code. Virtual and Augmented Reality presentation. December 2, 2019.

⬦ ACM GMH/Tapia Pane. November 6, 2019.

⬦ Target Visit (with Arthur Valdez). Search for students to participate in event and attended main event. October 16, 2019.

⬦ Early Start Freshmen, 40 participants (incoming CSU undergraduate students in STEM). This included NUILAB tour and demonstration. August 20, 2019.

⬦ Access Center High School Tour, 10 participants (first generation high-school students). This included NUILAB tour and demonstration. July 29, 2019.

⬦ Middle School Girls STEM Camp, 12 participants (female students in middle-school). This included NUILAB tour and demonstration. July 12, 2019.

⬦ Choose CSU (CSU admission event for prospective students), 70 participants (parents and high school seniors). This included NUILAB tour, demonstrations, and Presentation by **Francisco R. Ortega**. April 6, 2019.

⬦ Middle School Stem Camp, 20 participants (middle school). This included NUILAB tour and demonstration. June 19, 2019.

⬦ High School Computer Science Day, 60 participants (high school students). his included NUILAB tour, demonstrations, and Presentation by Kellyn Dassler. February 7, 2019.

⬦ Choose CSU (CSU admission event for prospective students), 70 participants (parents and high school seniors). This included NUILAB tour, demonstrations, and Presentation by **Francisco R. Ortega**. February 2, 2019.

⬦ Workshop for scholarship applications for ACM Tapia and ACM Grace Hoper. Spring 2019.

⬦ CSU's Incoming Students Computer Science Tour. Fall 2019.

⬦ CSU's Incoming Students Computer Science Tour. Spring 2019.

⬦ CSU's Incoming Students Computer Science Tour. Fall 2018.

⬦ Faculty Mentor for ARVR Student Club. 2018-present.

• NUILAB (Research Lab)

⬦ Unreal Engine Workshop (6 sessions). Summer 2019.

Internal (FIU)

- University

  ◇ Member of Florida Consortium of Metropolitan Research Universities. Representing Florida International University, 2016-2018.

  ◇ FIU Beyond 2020 program, working panel to proposed how to increase doctoral and post-doc students, 2016. .

  ◇ VR Hackathon 2018 Judge.

  ◇ Participated in the ISTEC Advisory Board Fall 2018. This included facilitating the Virtual Reality sub-group.

- College

  ◇ Java Workshop for Electrical and Computing Engineering (5 sessions). 2013.

- Departmental

  ◇ Programming Workshop for capstone projects (C++, C), hosted by OpenHID Labs. 2015-2016.

  ◇ Carnegie Doctoral Program Self-Studies and Strategic Planning with faculty and Ph.D. students working group, 2009.

ACADEMIC AFFILIATIONS

- Association for Computing Machinery (ACM) Professional Member. 2006 – Present.

SECTION 5: References/Demographics/Other Additional Information

LANGUAGES

Proficient in English and Spanish.

DEMOGRAPHICS

Nationalities: U.S Citizen, Chilean Citizen.

Ethnicity: Hispanic.