Francisco R. Ortega

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PARTICULARS

EDUCATION

Florida International University — Miami, FL
Ph. D. in Computer Science – GPA: 3.72 — *Fall 2014*

Florida International University — Miami, FL
M. S. in Computer Science – GPA: 3.8 — *Fall 2008*

Florida International University — Miami, FL
B. S. in Computer Science – GPA: 3.5 – In-major GPA: 3.7 — *Fall 2007*

RESEARCH INTERESTS

My research interests include Human-Computer Interaction, 3D User Interfaces, 3D Navigation, 3D Interaction, Multi-Modal Interaction, Gesture Recognition, Input Technologies, and Virtual Environments.

Additional interests include the areas of Augmented Reality, Virtual Reality, Affective Computing, Computer Graphics, Software Design, Petri-Nets, Networking, Cyber Security, and Machine Learning.

DISSERTATION

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

My dissertation provides an in-depth look at multi-touch technology for the use of 3D navigation. It includes a feature-extraction algorithm for multi-touch displays (FETOUCH), a multi-touch and gyroscope interaction technique (Gyro-Touch), a theoretical model for multi-touch interaction using high-level Petri Nets (PeNTa), a proposed gesture (Hold-and-Roll), and a 3D navigation user study comparing a multi-touch display and game controller in a pseudo-universe.

MISCELLANEOUS

Nationalities: U.S Citizen, Chilean Citizen.

Ethnicity: Hispanic.

ACADEMIC HONORS

- Nominated for College of Engineering Dissertation Year Award, 2014.
- Best Overall Graduate Student of the School of Computing and Information Sciences Year Award, 2014.
- Ph.D. GAANN Fellowship awarded by the US Department of Education, 4 years.

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

WORK EXPERIENCE

- **Visiting Assistant Professor, Director of OpenHID Lab, Florida International University,** Fall 2016 – Present.
  - Mentored several students on their Capstone projects in Computer Science and Electrical and Computer Engineering.
  - Mentored lab (undergraduate and graduate) students.
  - Researched 3D navigation, multi-modal interaction, and input technologies.
  - Taught several courses for Computer Science and Electrical and Computer Engineering.
- **VIP Coordinator, Florida International University,** Spring 2016 – present.
  - Supervised 13 VIP students for 6 months. The students helped to collect data.
  - Reached department chairs and faculty to recruit them for the VIP project.
  - Managed logistics for the VIP program at Florida International University.
  - Created VIP courses for undergraduate and graduate students.
  - Instructed VIP courses for undergraduate and graduate students.
  - Developed relationship with the Honors College and the Provost office to enhance the VIP program.
  - Performed administrative tasks including bi-yearly grant reports and VIP course logistics.
- **Visiting PostDoc Fellow, Director of OpenHID Lab, Florida International University,** Spring 2015 – Summer 2016.
  - Mentored several students on their Capstone projects in Computer Science and Electrical and Computer Engineering.
  - Mentored lab (undergraduate and graduate) students.
  - Researched 3D navigation, multi-modal interaction, and input technologies.
  - Wrote book titled: Interaction Design for 3D User Interfaces.
  - Taught several courses for Computer Science and Electrical and Computer Engineering.
  - Mentored Honors College Student for four semesters.
  - Provided workshops for topics, including C and C++, among others.
  - Wrote grants with different collaborators as CO-PI and PI.
  - Created a new graduate course called 3D User Interaction.
  - Collaborated with the Florida Consortium (FLC) to look for ways to increase STEM funding for USF, UCF, and FIU. In addition, I worked on a multi-university proposal for the colleges of engineering at USF, UCF, and FIU.
- **Research & Teacher Assistant, Florida International University**, Spring 2009 – Fall 2014.
  - Developed prototype using C++ Multi-Touch Win32 application with OpenGL for proposal.
  - Developed prototype to test WiiMote using wiiLib in C++.
  - Designed prototype using C++, OGRE3D, and Win32 API using WiiMote and Multi-Touch.

  - Taught Web Site Management and Construction and Programming I LAB.
  - Coached Programming Competition (Fall 2012).

- **Software Engineer, IBLUES Corporation,** Fall 1999 – Fall 2014
  - Developed and designed from the ground up, CUBE, a .Net Windows and ASP.NET Inventory software.
  - Designed and developed the Estee Lauder Retail Sales application, a .NET automated import utility for data consolidation.
  - Served as Lead Designer for the Estee Lauder data consolidation project. This included a .Net windows application, ETL procedures in .NET, MS-SQL Server 2000 database design, EDI price catalog, and Crystal Reports.
  - Managed three offshore developers in Chile for Estee Lauder.
  - Managed two offshore developers in Colombia.
- **Operator & Asst. SysAdmin, Tecnicard, Inc.,** Spring 1994 – Fall 1999
  - Worked as a system operator and provided assistance to system administrators.
  - Provided system administration for OpenVMS running on Alpha and VAX systems.
  - Developed C programs and DCL scripts for OpenVMS system automation tasks.

RESEARCH EXPERIENCE

- **Real-Time Gesture Recognition: A Circular Fashion**, (Spring 2014 – Present) – The typical gesture recognition algorithm provides classification at the end of the gesture. In simple cases, it is possible to provide an accurate classification when the gesture is ongoing. However, classification for gestures (not symbols) before completion provide a more complex challenge, in particular when the response has to match the interaction and system resources. We have looked at several gesture classification techniques, including Rubine's algorithm, Dollar family, and gesture coder, among others. We have combined our own work with the aforementioned classifiers to be able to create better recognizers. In face with the low classification success we had, we have noticed certain patterns that made us rethink the problem. We have now found a novel approach based on the concept that multi-touch gestures, which in most cases, are angular gestures. From there, we have derived our latest work called Kyklos. In our latest findings, we have found that our recognition rates for multi-touch displays during early gesture detection provide correct classification results not achieved before. We are in the process of submitting two publications to the ACM UIST and ACM CHI conferences. This is an ongoing research, and we believe that we will continue to derive further findings for complex 3D gestures.
- **3D Navigation: User Studies and Gesture Elicitation**, (Spring 2012 – Present) – One of the earliest questions my colleagues and I had was how to keep improving 3D navigation with multi-touch displays. Over time, this question has evolved to other input devices, including vision-based cameras (mid-air interaction). This led us to the following question: What is the correct gesture set for a given interaction? We know that gesture elicitation has provided pathways to find them. However, this has some critics in the community about its efficacy. Therefore, We decided to start working on performing a series of gesture elicitation studies with two objectives: (i) Find a gesture set when possible; (ii) measure the quality of gesture elicitation when using different techniques. Our latest publication on the topic of gesture elicitation was accepted in the IEEE 3DUI Symposium, part of the IEEE VR conference (2017).
- **CS Education: Increase Recruitment and Retention of Women in Computer Science using Virtual and Augmented Reality**, (Summer 2016 – Present) – The number of women and minorities in Computer Science is significantly low. This number is even lower among the Hispanic and African-American populations. To improve low-enrollment rates among these populations, I started searching for ways to help in this area using my current expertise. With a problem this

large, I am concentrating in entry-level college women and high-school seniors. My early research, in addition to the current state-of-the-art, provides hints that using more interactive techniques could help increase these numbers. This is ongoing research from which one workshop publication has been accepted and one grant proposal sent to NSF (as PI).

- **Multi-Modal Interaction: Interactive Paint**, (Fall 2016 – Present) – Given the amount of new types of human input devices that are becoming pervasive in our daily lives, we asked the following question: how can we improve multi-modal interaction. The answer was to develop a interactive painting application from the ground up. This has led us to learn new forms of interaction and the responsibility of each of the devices as they connect to the application (automatic mode switching). We have continued to look at this problem using our interactive paint application, because it provides multiple avenues to answer open questions and improve the state of the art. Future work also includes a 3D sculpture environment that will provide multi-modal interaction.
- **Modeling Users for 3D User Interfaces**, (Spring 2015 – Present) – After I completed my dissertation and classified my users using previous ad-hoc techniques, a question still remained: is it possible to model user types (e.g., experienced gamer versus casual gamer) for specific scenarios? We are currently looking at how to model first person shooters with several user studies. If successful, it will provide a great way to classify user cues for 3D navigation user studies.
- **Multi-Touch Interaction and Input Techniques**, (Spring 2011 – Present) – The central theme of my research during my dissertation was to look at multi-touch interaction and ways to improve 3D navigation. This research has provided multiple publications to improve the state-of-the-art as well as to continue looking at new forms of multi-touch interaction and gesture recognition.
- **PeNTa: Formal Modeling for Multi-Touch Systems Using Petri Net**, (Spring 2013 – Spring 2015) – Together with a Petri Nets (PNs) expert researcher, we looked at the possibility to define a mathematical model for gesture recognition using high-Level PNs. This provided an interesting look on how to create distributed systems for recognition. Currently, we have not furthered the research in this area in favor of our new GyRo efforts, but PeNTa, with further work and implementation, could provide a rigorous mathematical framework for real-time systems.
- **Affective Computing**, (Spring 2009 – Fall 2010) – This research concentrated in the ability for systems to detect gesture recognition using sensors (e.g., galvanic skin response) to determine the user stress levels and affective state. In addition, we provided embodied conversational agents for social work research that looked into methods for sexual protection (e.g., condoms). While this area of research was continued as other research projects, it provided insight into sensors for user interaction and has allowed me to contribute to other projects, where I am a co-author of their publications.

GRANTS

PENDING

- PI: "NSF I-USE 2017 – EHR: New 3D Virtual Programming Language and Game-based Learning Paradigm and Evaluation of their Effectiveness in Improving Recruitment and Retention of Women in Computer Science", $300,000, 2017.
- CO-PI: "NSF MRI 2017: Development of a GeoSpatial Instrument for Analysis and Interaction with Super-resolution Aerial Imagery",$1,995,000, 2017.
  - Contributed to more than 60% effort of the entire proposal.
  - Won University-wide competition.
- CO-PI: Florida Center for Cybersecurity (FC^2), University of South Florida, "Using a Cyberlearning Environment to Enhance Critical Cybersecurity Education", $100,000, 2017.
  - Collaborative grant with Florida Gulf Coast University and Florida International University.

AWARDED

- PI: "NIH-NIDA SUD Challenge – BioBrace VR: Bio-Interactive Device with Personalized Avatar Therapy for SUD", $10,000, Awarded to BioMagic VR, Inc. in preparation for STTR/SBIR.
- 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.
- "Florida Consortium of Metropolitan Research Universities, Summer Grant", $3,000, 2016.
- "IUCRU CAKE additional membership fees from OverIT (Italian-based company)", $3,000, June, 2016.
- "IUCRU CAKE membership fees from OverIT (Italian-based company)", $5,000, June, 2016.
- "IUCRU CAKE membership fees from Polymer Braille Inc", $5,000, June, 2016.

NOT FUNDED

- CO-PI: "NSF MRI 2016: Development of a GeoSpatial Instrument for the Acquisition, Navigation, Analysis, and Interaction with Super-resolution Aerial Imagery",$1,995,000, 2016.
  - Contributed to more than 40% effort of the entire proposal.
  - Won University-wide competition.
- CO-PI: "NSF CRISP Type 2: Sea Level Rise", $1,995,000, 2016.

TEACHING EXPERIENCE

FLORIDA INTERNATIONAL UNIVERSITY

- **Instructor.** COP 4338 – Programming III (C language): Summer 2016, Summer 2015 (C/C++), Spring 2015
- **Instructor.** COP 3337 – Programming II (Java): Summer 2017.
- **Instructor.** CNT 4713 – Net-Centric Computing (two sections): 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.
- **Co-Instructor.** COP 5725 – Principles of RDBMS (graduate): Spring 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 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.

MENTORING EXPERIENCE

DIRECTED RESEARCH

- **Ruben Balcazar, master student in Computer Science**, Summer 2015 – Present – I have trained him in research dealing with gesture recognition and multi-touch input technologies. He has been developing a complex model for gesture recognition and we are currently preparing the publication to be submitted Spring 2017.
- **Jules Calella, master student in Electrical Engineering**, Fall 2015 – Present – He started as an undergraduate student. He is co-advised to build sensors and other devices that will lead towards patents and publications.
- **Alain Galvan, undergraduate in Computer Science**, Spring 2015 – Present – I have trained him in how to conduct research for 3D navigation and computer graphics. He is currently preparing a SIGGRAPH publication and has already sent one publication about 3D navigation. He is expected to start his master's in Fall 2017.
- **Jason-Lee Thomas, undergraduate in Computer Engineering**, Summer 2015 – Present – I have trained him in how to conduct research for gesture recognition for mid-air interactions. He is currently working towards a publication for IEEE 3DUI using the Microsoft HoloLens.
- **Katherine Tarre, master student in Statistics**, Summer 2016 – Present – I have trained her in how to conduct research dealing with gesture elicitation and user modeling. She has already submitted three publication.
- **Jonathan Bernal, undergraduate in Computer Engineering**, Summer 2016 – Present – I have trained him in how to conduct research for gesture recognition and multi-modal interaction. He has submitted three publications.
- **Lukas Borges, undergraduate in Computer Science**, Summer 2016 – Present – I have co-mentored him along with the Architecture department for an augmented reality application for education dealing with building structures. His paper was accepted for ISMAR 2016.

GENERAL

- **Capstone Senior Project, Computer Science**, Spring 2015 - Present – Mentored over 30 students in projects related to 3D user interfaces including a desktop interactive paint application and a similar one for Microsoft HoloLens, among others.
- **Capstone Senior Design, Electrical and Computer Engineering**, Spring 2015 - Present – Mentored over 40 student groups (each comprised of 3-5 students) in projects related to 3D user interfaces and hardware design, including input devices, conductive fabric, interactive motion sensors, and bio-signal devices.
- **Independent Studies**, Summer 2016 – Mentored one student to develop an automated gesture elicitation tool. The student was required to develop a complete solution while researching about gesture elicitation.
- **Honors College Research**, Fall 2015 – Spring 2017 – Mentored one student in two projects related to gesture recognition and capstone design project for IDH 4007 and IDH 4905. Student: Jonathan Bernal.
- **VIP Suplemental Team**, Spring 2016-Summer 2016 – Mentored 15 students for six-months to help them learn about different aras of research in and outside their fields.

PUBLICATIONS

Refereed Journals

1. **Ortega, F.**, Tarre, K., Rishe, N., and Barreto, A., "3D Navigation for 6DOF Using Multi-Touch vs. GamePad", under submission in *International Journal of HumanComputer Interaction*, 2017.

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

Refereed Conferences

4. **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)*, Los Angeles, CA., 2016, In press.
5. 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.
6. 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, Aug. 2015.
7. **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, Aug. 2015.
8. **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.
9. 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.
10. **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.
11. Cofino, J., Barreto, A., Abyarjoo, F., and **Ortega, F.**, "Sonifying HTML Tables for Audio-Spatially Enhanced Non-Visual Navigation." In *IEEE SoutheastCon, 2013 Proceedings of IEEE*, Jacksonville, FL, pp. 1–5, 2013.
12. Abyarjoo, F., Barreto, A., Abyarjoo, S., **Ortega, F.**, and Cofino, J., "Monitoring Human Wrist Rotation in Three Degrees of Freedom." In *IEEE SoutheastCon, 2013 Proceedings of IEEE*, Jacksonville, FL, pp. 1–5, 2013
13. **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.
14. 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.

15. 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.* LNCS 5612, pp. 693–702, 2009.

OTHER REFEREED PAPERS (Workshops, Posters)

16. **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 *IEEE Virtual Reality 2017 Workshop on K-12 Embodied Learning through Virtual & Augmented Reality*, KELVAR 2017, Los Angeles, CA., 2016, In press.
17. 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., 2016 In press.
18. Calella, J., **Ortega, F.**, Rishe, N., Barreto, A., and Bernal, J., "HandMagic: Towards User Interaction with Inertial Measuring Units." In *IEEE Sensors 2016*, Orlando, FL, 2016, pp. 1–3.
19. **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
20. 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 *Mixed and Augmented Reality (ISMAR-Adjunct), 2016 IEEE International Symposium* on, pp. 260–261, IEEE, 2016.
21. **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.
22. **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.
23. **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.
24. **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*, pp. 167-168. 2013.
25. 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.

BOOKS

26. **Ortega, F.**, Rishe, N., and Barreto, A., *3D Multimodal interaction: With an Input Perspective*, CRC Press/AK Peters book. New York, NY. 2017.
27. **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.

BOOK CHAPTERS

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

NON-REFEREED PAPERS

29. **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.
30. **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.
31. 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.

PATENTS & APPLICATIONS

1. Barreto, A., O-Larnnithipong, N., **Ortega, F.**, and Rishe, N., "Roundtable VRT." Disclosed to FIU, January, 2017. Current Status: Approved by FIU for application submission.
2. **Ortega, F.**, Rishe, N., and Barreto, A., "MagicMotion." Disclosed to FIU, May, 2016. Current Status: Approved by FIU for application submission.
3. **Ortega, F.**, Rishe, N., and Barreto, A., "Gesture Discernment and Processing System." US Utility Patent filed November 28th, 2014, USPS Application Number 20160091977, publication date March 31st, 2016, pending.

TALKS

1. 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.
2. Ortega, F., "PostureMonitor: Real-Time IMU Wearable Technology to Foster Poise and Health." In *HCI International 2015*. Los Angeles, CA, August 2015.
3. Ortega, F., "TAMGeF: Touch-midAir-Motion Framework for Spatial Input." In *ACM Symposium on Spatial User Interaction*, (fast forward). Los Angeles, CA, August 2015.
4. Ortega, F., "GyroTouch: Wrist Gyroscope with a Multi-Touch Display." In *HCI International 2015*, Los Angeles, CA, August 2015.
5. Ortega, F., "Towards 3D navigation Using Multi-Touch Displays." In *University of Florida (Computer Science)*. Invited by Dr. Lisa Anthony. Gainesville, FL, 2015.
6. Ortega, F., "PeNTa: Formal Modeling for Multi-Touch Systems Using Petri Nets." In *HCI International 2014*. Crete, Greece, June 2014.
7. Ortega, F., "Towards 3D Navigation using Multi-Touch." In *McKnight Yearly Fellowship Meeting*, Tampa, FL, 2014.
8. Ortega, F., "Feature Extraction for Multi-Touch." In *McKnight Fellowship* at FIU, Miami, FL, January 23rd, 2014.
9. Ortega, F., "3D Navigation with Commodity Devices and the Formalization of Multi-Touch Language." In *University of Leeds*, Colloquium Friday Series. Invited by Dr. Roy Ruddle. Leeds, England, October 18, 2013.
10. 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.
11. 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
12. Ortega, F., "Looking Ahead: A Case for 3D User Interfaces." Guest Speaker for Florida International University, Software Engineering Course, Miami, FL, Mar. 27th, 2012.

13. 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.

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

15. 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.

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

PROFESSIONAL ACTIVITIES

- Co-Organizer Committee Member, *IEEE VR Second Workshop on K-12 Embodied Learning through Virtual & Augmented Reality* (KELVAR '17), Los Angeles, CA, 2017.
- Technical Program Committee Member, *ACM Symposium on Spatial User Interaction* (SUI '17), Brighton, UK, 2017.
- Publicity Co-chair, *ACM Symposium on Spatial User Interaction* (SUI '17), Brighton, UK, 2017.
- Technical Program Committee Member, *ACM Symposium on 3D User Interfaces* (3DUI '17), Los Angeles, CA, 2017.
- Publicity Co-chair, *ACM Symposium on 3D User Interfaces* (3DUI '17), Los Angeles, CA, 2017.
- Technical Program Committee Member, *ACM Symposium on Spatial User Interaction* (SUI '16), Tokyo, Japan, 2016.
- Publicity Co-chair, *ACM Symposium on Spatial User Interaction* (SUI '16), Tokyo, Japan, 2016.

SERVICE

- Primary reviewer for *ACM Symposium on 3D User Interfaces* (3DUI '17).
- Primary reviewer for *ACM Symposium on Spatial User Interaction* (SUI '16).
- Reviewer for *ACM Symposium on Spatial User Interaction* (SUI '16).
- Reviewer for *ACM Richard Tapia Celebration of Diversity in Computing*, 2015-2017
- Reviewer for *IEEE Sensors Journal*, 2014-2016.
- Reviewer for *IEEE Journal of Biomedical and Health Informatics*, 2014. .

LANGUAGES

Proficient in English and Spanish.

REFERENCES

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