

FRANCISCO CASTRO

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EDUCATION

PH.D. in COMPUTER SCIENCE	Worcester Polytechnic Institute (WPI)	EXPECTED: May 2019
• HUMAN-COMPUTER INTERACTION (HCI) and LEARNING SCIENCES specialization		
MASTER in INFORMATION TECHNOLOGY	Ateneo de Manila University	2014
B.SC. in COMPUTER SCIENCE	University of the Philippines Los Baños	2010

EXPERIENCE

VISITING RESEARCH SCHOLAR and RESEARCH ASSISTANT (Joint appointment)	Brown University, Rhode Island USA Worcester Polytechnic Institute, Massachusetts USA	05/2017 – Present 01/2015 – Present
• Designed and implemented human-centered research on programmer behaviors, interactions, and cognitive patterns leading to the development of novel theories and frameworks of programmer cognition and learning. Led the development and implementation of longitudinal field research studies applying combined user research techniques (think-aloud and interview protocols, card sorting, survey design, ethnography) and qualitative analytics (open coding, grounded theory methods).		
HCI RESEARCH and UX ENGINEER INTERN	Amadeus, Waltham, Massachusetts, USA	05/2018 – 08/2018
• Successfully designed and implemented the interactive front-end interface of an airline operations response system. Analyzed airline operations manager user behaviors and interactions for system design and implemented a novel visualization of flight information. (The system, components, and visualizations are currently under process for intellectual property and patent.)		
CONTENT DEVELOPMENT INTERN	DataCamp, Cambridge, Massachusetts USA	05/2016 – 08/2016
• Designed and developed online interactive data science courses that have been used by a total of about 238,000 learners worldwide. Developed software for automated evaluation and feedback of user submissions, and beta-tested products. Online courses deployed: Python Data Science Toolbox series [Part-1 , Part-2] and Importing Data in Python series [Part-1 , Part-2]		
USER EXPERIENCE DESIGNER	Ateneo de Manila University, PHILIPPINES	03/2014 – 06/2014
• Designed and developed user interfaces for the Android and web applications of a traffic and air pollution analysis system. Conducted initial usability testing and used the findings to enhance the user experience of the Android and web interfaces.		
VISITING RESEARCHER	Nara Institute of Science and Technology, JAPAN	10/2013
• Developed the automatic speech recognition system of the Augmented Human Communication Laboratory by mining web and video resources for speech patterns.		
TECHNICAL and RESEARCH CONSULTANT	Ateneo de Manila University, PHILIPPINES	06/2013 – 01/2014
• Deployed an Android mobile healthcare information system to 5 local government implementation sites across different regions in the Philippines. Provided field technical training on system usage to medical and public health practitioners. Conducted and published research studies on eHealth technology development and deployment in a developing country.		

ACADEMIC POSITIONS

TEACHING ASSISTANT	Worcester Polytechnic Institute, USA	08/2014 – 12/2014
• Awarded Computer Science Teaching Assistant of the Year as lead TA for 2 large courses (120-150 students/class): introduction to program-design and object-oriented design, instruction of laboratory classes, design and assessment of course requirements, and the management of undergraduate teaching assistant teams (10 teaching assistants per team).		
INSTRUCTOR	Ateneo de Manila University, PHILIPPINES	06/2013 – 07/2014
• Redesigned an undergraduate course on computing and information technology. Taught undergraduate and graduate computer science courses and interdisciplinary courses on health informatics and IT, with class sizes of 30-40 students.		
INSTRUCTOR	University of the Philippines Los Baños, PHILIPPINES	06/2011 – 05/2013
• Redesigned and taught undergraduate computer science courses for both CS and non-CS majors, with course sizes of 100-150 students. Authored university publication articles as member of the College of Arts and Sciences Publication Committee.		

SKILLS and TOOLS

Programming Languages, Environments, and Frameworks	Python, Typescript, Javascript, Angular, D3.js, Java, R, Node.js, LaTeX, HTML 5, C, Spyder, Visual Studio Code, Anaconda, Atom, Eclipse, Android Studio, PyCharm
User Research Methods and User Experience Design Tools	Survey design, Think-aloud protocol, Interview protocol, Ethnography, Participant observation, Qualitative analytics, Card sorting, Dedoose, Qualtrics, SurveyMonkey, Adobe Photoshop, Adobe InDesign, Justinmind, SnagIt
Other Tools and Suites	Git, GitHub, BitBucket, SourceTree, Slack, Trello, Zotero, Google Suite, Microsoft Office
OS	Windows, Linux, Mac OS

SELECTED RESEARCH PROJECTS and PUBLICATIONS

(Full list of research publications: <https://franciscastro.github.io/publication/>)

HUMAN-COMPUTER INTERACTION and COGNITION

1. **Francisco Castro** and Kathi Fisler. Designing a Multi-Faceted SOLO Taxonomy to Track Program Design Skills Through an Entire Course. In Proceedings of the 17th Koli Calling International Conference on Computing Education Research (Koli Calling), pages 10-19. ACM 2017. **BEST PAPER AWARD.** [\[pdf\]](#)
2. Kathi Fisler and **Francisco Castro**. Sometimes, Rainfall Accumulates: Talk-Alouds with Novice Functional Programmers. In Proceedings of the 2017 ACM Conference on International Computing Education Research (ICER), pages 12-20. ACM 2017. [\[pdf\]](#)
3. **Francisco Castro** and Kathi Fisler. On the Interplay Between Bottom-Up and Datatype-Driven Program Design. In Proceedings of the 47th Technical Symposium on Computer Science Education (SIGCSE), pages 205-210. ACM 2016. [\[pdf\]](#)
4. Ma. Mercedes Rodrigo, Thor Andallaza, **Francisco Castro**, Marc Armenta, Thomas Dy, and Matt Jadud. An Analysis of Java Programming Behaviors, Affect, Perceptions, and Syntax Errors among Low-Achieving, Average, and High-Achieving Novice Programmers. Journal of Educational Computing Research, Vol 49, Issue 3, pages 293-325, October 2013. [\[pdf\]](#)

HEALTH INFORMATICS and MOBILE HEALTH technologies

1. Ma. Regina Estuar, Dennis Batangan, Andrei Coronel, Anna Amarra, and **Francisco Castro**. Bottom Up Approach and Devolved Design of a Health Information System: eHealth TABLET. In: Imamura K., Usui S., Shirao T., Kasamatsu T., Schwabe L., Zhong N. (eds) Brain and Health Informatics. BHI 2013. Lecture Notes in Computer Science, vol 8211. Springer, Cham. [\[pdf\]](#)
2. Ma. Regina Estuar, Dennis Batangan, Andrei Coronel, **Francisco Castro**, Anna Amarra, Rose Caliso, and John Vergara. eHealth TABLET: A Developing Country Perspective in Managing the Development and Deployment of a Mobile-Cloud Electronic Medical Record for Local Government Units. In Proceedings of the 2014 IEEE 15th International Conference on Mobile Data Management, pages 329-332. October 2014. [\[pdf\]](#)

DATA MINING in education and intelligent tutoring systems

1. **Francisco Castro**, Seth Adjei, Tyler Colombo, and Neil Heffernan. Building Models to Predict Hint-or-Attempt Actions of Students. In Proceedings of the 8th International Conference on Educational Data Mining (EDM), pages 476-479. 2015. [\[pdf\]](#)

SIMULATION DEVELOPMENT for crowd dynamics

1. **Francisco Castro** and Jaderick Pabico. A Study on the Effect of Exit Widths and Crowd Sizes in the Formation of Arch in Clogged Crowds. Philippine Computing Journal, Vol 8, No 1, pages 21-29, August 2013. [\[pdf\]](#)
2. **Francisco Castro** and Jaderick Pabico. Microsimulations of Arching, Clogging, and Bursty Exit Phenomena in Crowd Dynamics. Philippine Information Technology Journal, Vol 6, No 1, pages 11-16, 2013. **BEST PAPER AWARD.** [\[pdf\]](#)

SERVICE and AFFILIATIONS

PROFESSIONAL ORGANIZATIONS

- ACM Special Interest Group on Computer-Human Interaction (SIGCHI), 2017 – Present
- ACM Special Interest Group on Computer Science Education (SIGCSE), 2016 – Present

Served as PROGRAM COMMITTEE in the following INTERNATIONAL CONFERENCES

- Conference on Innovation and Technology in Computer Science Education – Italy 2017, Cyprus 2018
- Technical Symposium on Computer Science Education – Memphis 2016, Seattle 2017, Baltimore 2018, Minneapolis 2019