

# FRANCISCO CASTRO

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## EDUCATION

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

## EXPERIENCE

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<b>VISITING RESEARCH SCHOLAR</b>	Brown University, Rhode Island USA	05/2017 – Present
<b>RESEARCH ASSISTANT</b>	Worcester Polytechnic Institute, Massachusetts USA	01/2015 – Present
• Designed and implemented human-factors research on user behaviors, tool interactions, and learning patterns of programmers to develop frameworks of user performance and behaviors. Conducted longitudinal research studies using combined user research techniques (think-aloud and interview protocols, card sorting, survey design, protocol analysis, ethnography) and qualitative analysis methods (open coding, grounded theory methods).		
<b>CONTENT DEVELOPMENT INTERN</b>	DataCamp, Cambridge, Massachusetts USA	05/2016 – 08/2016
• Designed and developed online interactive data science courses, including the development of automated evaluation and feedback of user submissions, and product beta-testing. Online courses deployed: Python Data Science Toolbox series [ <a href="#">Part-1</a> , <a href="#">Part-2</a> ], Importing Data in Python series [ <a href="#">Part-1</a> , <a href="#">Part-2</a> ]		
<b>USER EXPERIENCE DESIGNER</b>	Ateneo de Manila University, PHILIPPINES	03/2014 – 06/2014
• Designed and developed user screens for Android and web applications of the Advanced Traffic and Pollution Monitoring and Analysis System. Conducted initial usability testing and enhancement of application interfaces for user experience development.		
<b>VISITING RESEARCHER</b>	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.		
<b>TECHNICAL &amp; RESEARCH CONSULTANT</b>	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 technical training on system usage and troubleshooting to end-users. Conducted and published research studies on eHealth technology development and deployment in a developing country.		
<b>WEB DEVELOPER</b>	La Salle Provincialate, PHILIPPINES	04/2009 – 05/2009
• Led the redesign and development of a personnel management system for the company's local and international districts.		

## ACADEMIC POSITIONS

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<b>TEACHING ASSISTANT</b>	Worcester Polytechnic Institute, USA	08/2014 – 12/2014
• Awarded Computer Science Teaching Assistant of the Year for the management of a team of 10 teaching assistants for two large courses with class sizes of 120-150 students: (1) introduction to program-design and (2) object-oriented design, the supervision of laboratory classes, and assessment of course requirements.		
<b>INSTRUCTOR</b>	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.		
<b>INSTRUCTOR</b>	University of the Philippines Los Baños, PHILIPPINES	06/2011 – 05/2013
• Taught undergraduate computer science courses for both CS and non-CS majors, with course sizes of 100-150 students. As member of the College of Arts and Sciences Publication Committee, wrote articles for university newsletters.		

## SKILLS and TOOLS

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<b>Programming/Scripting</b>	Python, Java, R, LaTeX, HTML, C, Atom, Sublime, Eclipse, Spyder, Git, BitBucket, SourceTree, Anaconda tools, Android Studio, PyCharm
<b>User Research and Prototyping</b>	Survey design, Think-aloud, Interview, Protocol analysis, Ethnography, Qualitative analysis, Qualtrics, Observational study, Dedoose, Adobe Photoshop, Justinmind Prototyper, SurveyMonkey, SnagIt
<b>Other Tools and Suites</b>	Zotero, Google Docs, Microsoft Office
<b>OS</b>	Windows, Linux, Mac OS

## RESEARCH PROJECTS and PUBLICATIONS

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### HUMAN-COMPUTER INTERACTION in computing education

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. **Francisco Castro**, Shriram Krishnamurthi, and Kathi Fisler. The Impact of a Single Lecture on Program Plans in First-Year CS. In Proceedings of the 17th Koli Calling International Conference on Computing Education Research (Koli Calling), pages 118-122. ACM 2017. [\[pdf\]](#) [\[techreport\]](#)
3. 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. [\[pdf\]](#)
4. **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. [\[pdf\]](#)
5. 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

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<b>Professional Organizations</b>	ACM Special Interest Group on Computer Science Education, 2016 – Present ACM Special Interest Group on Computer-Human Interaction, 2017 – Present
<b>International Conference Committees</b>	Technical Symposium on Computer Science Education (MEMPHIS 2016, SEATTLE 2017, BALTIMORE 2018) Conference on Innovation and Technology in Computer Science Education (ITALY 2017, CYPRUS 2018) Philippine Computing Science Congress (PHILIPPINES 2016, 2017)