FRANCISCO CASTRO

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EDUCATION

Ph.D. in Computer Science	Worcester Polytechnic Institute (WPI)	Expected: May 2019
Specialization: human-factors, learning sciences, human-computer interaction		
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	Department of Computer Science, Brown University, Rhode Island USA	05/2017 – Present
Research Assistant	Department of Computer Science, WPI, Massachusetts USA	01/2015 – Present

- Designed and published human-factors research on user behaviors, tool interactions, and learning patterns in program-design to develop learning theories. Conducted longitudinal research studies using combined user research techniques (think-aloud protocols, card sorting, survey design, interviews, protocol analysis) and qualitative analysis methods (open coding, grounded theory methods).

Content Development Intern	DataCamp, Cambridge, Massachusetts USA	05/2016 – 08/2016

- Designed and developed online interactive data science courses, including development of automated evaluation and feedback of user submissions. Online courses deployed: Python Data Science Toolbox series [**Part 1**, **Part 2**], Importing Data in Python series [**Part 1**, **Part 2**]

User Experience Designer	Advanced Traffic and Pollution Monitoring and Analysis System, PHILIPPINES	03/2014 – 06/2014

- Designed and developed user screens for Android and web applications of the ATPMS. Conducted initial usability testing and enhancement of application interfaces for user experience development.

Visiting Researcher	Augmented Human Communication Laboratory, Nara Institute of Science and Technology, JAPAN	10/2013

- Developed the automatic speech recognition system of the AHC Lab by mining web and video resources for speech patterns.

Technical and Research Consultant	Institute of Philippine Culture, 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.

Web Developer	La Salle Provincialate Communications and Resources, 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

Teaching Assistant	Department of Computer Science, 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) program-design and (2) object-oriented design, the supervision of laboratory classes, and assessment of course requirements.

Instructor	Department of Information Systems and Computer Science, 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	Institute of Computer Science, 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.

RESEARCH PROJECTS and PUBLICATIONS

HUMAN-FACTORS 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]

TECHNICAL SKILLS

Programming/Scripting	Python, Java, R, LaTeX, HTML, C
Applications and Tools	Atom, Sublime, Eclipse, Spyder, Git, SourceTree, Qualtrics, Dedoose, Anaconda, Android Studio, Zotero, Adobe Photoshop, Justinmind Prototyper, PyCharm, Google Docs, Microsoft Office
OS	Windows, Linux, Mac OS

SERVICE and AFFILIATIONS

Professional Organizations	ACM Special Interest Group on Computer Science Education, 2016 – Present ACM Special Interest Group on Computer-Human Interaction, 2017 – Present
Conference Committees	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)
Community and Outreach	Vice President, WPI Undergraduate Research Journal, 2016 – Present Staff Volunteer, WPI TouchTomorrow: A Festival of Science, Technology, and Robots, 2015-2017 WPI Computer Science Department Graduate Council, 2014