FRANCESKA XHAKAJ

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EDUCATION

2015 - present
Ph.D. in Human-Computer Interaction
Human-Computer Interaction Institute
School of Computer Science
Carnegie Mellon University, Pittsburgh, PA
Advisor: **Dr. Amy Ogan and Dr. Vincent Aleven**

2015 - 2017
M.S. in Human-Computer Interaction
Human-Computer Interaction Institute
School of Computer Science
Carnegie Mellon University, Pittsburgh, PA

2015 - present
PIER Associate
Program for Interdisciplinary Education Research at Carnegie Mellon University funded by the Institute of Education Sciences (IES)

2011 - 2015
GPA: 3.92/4.00
B.S. in Computer Science
Minor in Mathematics
Summa Cum Laude, Honors in Computer Science
Lafayette College, Easton, PA

Honors Thesis: “Intelligent tutors and granularity: A new approach to Red Black Trees."
Advisor: Dr. Chun Wai Liew

RESEARCH EXPERIENCE

2018 - present
Research Assistant
Human-Computer Interaction Institute
Carnegie Mellon University, Pittsburgh, PA
with Dr. Amy Ogan and Dr. Vincent Aleven

Working on the ClassInSight project and focusing on helping teachers at the university level improve their teaching through PI (Personal Informatics) and PD (Professional Development).

2018
Research Assistant
Human-Computer Interaction Institute
Carnegie Mellon University, Pittsburgh, PA
with Dr. Vincent Aleven

Focused on helping students acquire conceptual and procedural knowledge of programing through an Intelligent Tutoring System that supports two types of conceptually-oriented activities: code tracing and code comprehension. Evaluate whether the tutor can support students’ conceptual learning and transfer to procedural learning of computer programming.

2015 - 2018

Research Assistant
Human-Computer Interaction Institute
Carnegie Mellon University, Pittsburgh, PA
with Dr. Vincent Aleven and Dr. Bruce M. McLaren

Followed user-centered design approaches and used Contextual Inquiry, Interpretation Sessions, Affinity Diagramming, Storyboarding, Speed Dating and Prototyping to design a dashboard for middle-school mathematics teachers who use ITSs. Ran studies in real classroom environments to evaluate the dashboard's effect on student learning for the domain of linear equation solving. Mentored 5 undergraduate students who were helping with developing and implementing the dashboard.

Summer 2015

Student Researcher
Human-Computer Interaction Institute
Carnegie Mellon University, Pittsburgh, PA
with Dr. Vincent Aleven

Worked on classifying student errors in the Lynette Cognitive Tutor through log replaying of student data collected by the tutor in the domain of math. Designed and implemented bug rules in Jess and tested them, through a log replayer, with previously collected data.

Summer, Fall 2014

Undergraduate Student Researcher
LearnLab
Carnegie Mellon University, Pittsburgh, PA
with Dr. Vincent Aleven

Redesigned and implemented an example-tracing engine in JavaScript, based on an implementation in Java. Collaborated with other researchers to test and enhance the functionality of the new engine.

Spring 2014

EXCEL Student Researcher
Lafayette College, Easton, PA
with Dr. Chun Wai Liew

Worked on adapting a tablet application (for geology field projects) as a tutor that uses question asking to teach students how to gather field data. Designed a question-asking framework to be used in a real classroom.

Summer 2013

Undergraduate Student Researcher
PROLANGS@VT research group
Virginia Tech, Blacksburg, VA
with Dr. Barbara G. Ryder

Studied the dynamic behavior of JavaScript objects using data collected from popular web sites and modified a tracing infrastructure developed in C++. Designed experiments and collected data on the dynamic behavior of JavaScript objects.

January 2013

EXCEL Student Researcher
Lafayette College, Easton, PA
with Dr. Chun Wai Liew

Collaborated with a biology student and studied fish evolution. Analyzed fish models in Python, as well as designed and ran experiments to analyze how the speed of fish is affected by changes in their body parameters.

Summer 2012 **EXCEL Student Researcher**
Lafayette College, Easton, PA
with Dr. Chun Wai Liew

Worked on inferring information using Hidden Markov Models and the Viterbi Algorithm on the Iterated Diner's Dilemma game. Worked with an implementation of the game in Java and created scripts to run experiments and analyzed the collected data in R.

CONFERENCE PUBLICATIONS

Xhakaj, F., & Aleven, V. (2018). Towards Improving Introductory Computer Programming with an ITS for Conceptual Learning. In *International Conference on Artificial Intelligence in Education* (pp. 535-538). Springer, Cham.

Bodily, R., Kay, J., Aleven, V., Davis, D., Jivet, I., **Xhakaj, F** & Verbert, K. (2018) Open learner models and learning analytics dashboards: A systematic review. In *Proceedings of the 8th International Conference on Learning Analytics and Knowledge (LAK)*, pp. 41-50. ACM, 2018.

Xhakaj, F., Aleven, V., McLaren, B.M. (2017). Effects of a Teacher Dashboard for an Intelligent Tutoring System on Teacher Knowledge, Lesson Planning, Lessons and Student Learning. In É. Lavoué, H. Drachsler, K. Verbert, J. Broisin, M. Pérez-Sanagustín (Eds.), *Proceedings of the 12th European Conference on Technology Enhanced Learning, EC-TEL 2017, (pp.* 315-329). Springer International Publishing Switzerland.

Xhakaj, F., Aleven, V., McLaren, B.M. (2017). Effects of a dashboard for an intelligent tutoring system on teacher knowledge, lesson plans and class sessions. In E. Andre, R. Baker, X. Hu, Ma. M. T. Rodrigo, B. du Boulay (Eds.), *Proceedings of the 18th International Conference on Artificial Intelligence in Education, AIED 2017, (pp.* 582-585). Springer International.

Xhakaj, F., Aleven, V., McLaren, B.M. (2016). How teachers use data to help students learn: Contextual Inquiry for the design of a dashboard. In K. Verbert, M. Sharples, T. Klobučar (Eds.), *Proceedings of the 11th European Conference on Technology Enhanced Learning, EC-TEL 2016, (pp.* 340-354). Springer International Publishing Switzerland.

Aleven, V., **Xhakaj, F.**, Holstein, K, & McLaren, B. M. (2016). Developing a teacher dashboard for use with intelligent tutoring systems. In *Proceedings of the 4th International Workshop on Teaching Analytics at the 11th European Conference On Technology Enhanced Learning, IWTA 2016*.

Holstein, K., **Xhakaj, F.**, Aleven, V., & McLaren, B. M. (2016). Luna: A dashboard for teachers using intelligent tutoring systems. In *Proceedings of the 4th International Workshop on Teaching Analytics at the 11th European Conference On Technology Enhanced Learning, IWTA 2016*.

Aleven, V., Sewall, J., Popescu, O., **Xhakaj, F.**, Chand, D., Baker, R. S., & Gasevic, D. (2015). The beginning of a beautiful friendship? Intelligent tutoring systems and MOOCs. In C. Conati, N. Heffernan, A. Mitrovic, & M. F. Verdejo (Eds.), *Proceedings of the 17th International Conference on AI in Education, AIED 2015* (pp. 525–528). New York: Springer.

Liew, C. W., & **Xhakaj, F.** (2015). Teaching a complex process: Insertion in Red Black Trees. In C. Conati, N. Heffernan, A. Mitrovic, & M. F. Verdejo (Eds.), *Proceedings of the 17th International Conference on Artificial Intelligence in Education, AIED 2015* (pp. 698–701). New York: Springer International Publishing.

Xhakaj, F., & Liew, C. W. (2015). A new approach to teaching Red Black Trees. In V. Dagienė, C. Schulte, & T. Jevsikova (Eds.), *Proceedings of the 20th ACM Annual Conference on Innovation and Technology in Computer Science Education, ITiCSE '15* (pp. 278–283). New York: ACM.

JOURNAL PUBLICATIONS

Wei, Sh., **Xhakaj, F.**, & Ryder, B.G. (2015) Empirical Study of the Dynamic Behavior of JavaScript Objects. *Journal of Software: Practice and Experience, 46*, 7, 867–889.

UNPUBLISHED SENIOR THESIS

Xhakaj, F. (2015). Intelligent tutors and granularity: A new approach to Red Black Trees. Unpublished senior thesis, Department of Computer Science, Lafayette College, Easton, Pennsylvania. USA.

TEACHING AND MENTORING EXPERIENCE

Fall 2018 — **Head Teaching Assistant, User-Centered Research and Evaluation (UCRE)**
Human-Computer Interaction Institute at Carnegie Mellon University
Assisted with the course redesign this semester which involved deciding topics and concepts to cover during the semester, creating learning goals for the course overall and projects/individual assignments, designing and allocating time for each project and assignment as well as creating exercises for the final exam. Collaborated with other TAs in the course to create grading rubrics for each assignment. Created, lead and oversaw class sections (~20 students), graded individual and group student work, provided feedback on assignments and projects.

Fall 2018 — **Mentor for undergraduate Independent Studies**
Human-Computer Interaction Institute at Carnegie Mellon University
Directly mentored two undergraduate students in their Independent Study projects as part of the ClassInSight project.

Spring 2018 — **Teaching Assistant, Programming Usable Interfaces (PUI)**
Human-Computer Interaction institute at Carnegie Mellon University
Lead and oversaw lab sessions (~20 students), designed labs and homework assignments, designed quiz and exam questions, graded student work, provided feedback on assignments, projects and assessments.

Spring 2018 — **Guest Lecture, Programming Usable Interfaces (PUI)**
Human-Computer Interaction institute at Carnegie Mellon University
Held a guest lecture that aimed to introduce students to some user-centered design methods and examples of their use in my own research

Summers 2015 - 2018 — **LearnLab Summer School Mentor, ITS Track**
LearnLab, ITS Track at Carnegie Mellon University
Mentored groups of students each summer during hands-on activities. Assisted with brainstorming domains and tasks, designing interfaces and building Intelligent Tutoring Systems (ITS) with these tasks and interfaces using the Cognitive Tutor Authoring Tools (CTAT)

Summer 2016 — **REU Mentor**
Human-Computer Interaction institute at Carnegie Mellon University
Mentored 5 REU students who were involved with research and software development on the teacher dashboard project

2013 - 2014 — **Teaching Assistant, Algorithms and Data Structures**
Computer Science Department at Lafayette College
Led and oversaw lab sessions, built some assignments and labs

AWARDS AND HONORS

2015	**Summa Cum Laude, Honors in Computer Science, Lafayette College**
2014	**Upsilon Pi Epsilon Scholarship Award** Upsilon Pi Epsilon International Honor Society for the Computing and Information Disciplines
2014	**James P. Schwar Prize, Lafayette College**
Every semester	**Dean's List, Lafayette College**
2011 - 2015	**Walter Oechsle Scholarship, Lafayette College**
2012, 2013	**Grace Hopper Celebration of Women in Computing Scholarship**

LEADERSHIP AND SERVICE

Student Organizer	**Women in SCS@CMU organizing committee, 2017 - present**
	SCS4All Initiative organizing committee, 2017 - present
	OurCS conference organizing committee, 2017
	HCI Ph.D. Tea Time Social, 2018 - present
	HCI Ph.D. monthly lunches, 2016 - 2017
	HCII Prospective Ph.D. Student Open House, 2015
	HCI Korean - Japanese gatherings, 2015 - present
Founder, President	**Women in Computing Club, Lafayette College, 2012 - 2015**
President	**Upsilon Pi Epsilon Club, Lafayette College, 2014 - 2015**
Peer Adviser	**International Student Association, Lafayette College, 2012 - 2013**

SKILLS

Programming Languages	Java, JavaScript, Jess, C++, HTML, CSS, R, Python, C, Intel IA32
Tools	CTAT, Django, Ajax, jQuery, Heroku, NodeJs, SQLite, LaTex, Mathematica, WordPress, Sketch, InVision, Adobe: Photoshop, Flash Player, InDesign
Research Methods	Contextual Inquiry, Interpretation Sessions, Affinity Diagramming, Speed Dating, Storyboarding, Prototyping, Directed Storytelling, Classroom Studies
Languages	English, Albanian, Italian, French, Greek, Korean