FRANÇESKA XHAKAJ

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APPOINTMENTS

2021 - present **Assistant Teaching Professor**
Computer Science Department (**CSD**) & Human-Computer Interaction Institute (**HCI***)*
School of Computer Science (SCS), Carnegie Mellon University

EDUCATION

2015 - 2021 **Ph.D. Human-Computer Interaction**
School of Computer Science, **Carnegie Mellon University**, Pittsburgh, PA
Dissertation: Investigating How To Support Teachers In Their Teaching And Help Them Improve
Their Practices Through Data And Technology.
Advisor: Amy Ogan
Thesis Committee: John Zimmerman, Geoff Kaufman, Marsha Lovett

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

2015 - present **PIER Fellowship Associate**
Program for Interdisciplinary Education Research funded by the Institute of Education Sciences,
U.S. Department of Education

2011 - 2015
GPA:
3.92/4.00
B.S. Computer Science
Lafayette College, Easton, PA
Minor in Mathematics
Summa Cum Laude, Honors in Computer Science
Thesis: Intelligent tutors and granularity: A new approach to Red Black Trees.
Advisor: Chun Wai Liew

AWARDS AND HONORS

2019 Alan J. Perlis Graduate Student Teaching Award, *Carnegie Mellon University*
This award honors graduate students who have displayed the highest degree of excellence in and
dedication to teaching in the School of Computer Science at Carnegie Mellon University.

2019 Graduate Student Assembly Departmental Appreciation Award, *Carnegie Mellon University*

2015 Summa Cum Laude, Honors in Computer Science, *Lafayette College*

2014 UPE Special Recognition Award, *Upsilon Pi Epsilon International Honor Society for the
Computing and Information Disciplines*

2014 James P. Schwar Prize, *Lafayette College*
Awarded annually to a deserving computer science student.

2011 - 2015 Walter Oechsle Scholarship, *Lafayette College*

2012, 2013 Grace Hopper Celebration of Women in Computing Scholarship, *Grace Hopper Conference*

TEACHING & MENTORING EXPERIENCE

TEACHING EXPERIENCE

Instructor **Principles of Computing (15-110),** *[S24, F22, S22, F21]*
School of Computer Science, Carnegie Mellon University
- Co-instructing (with Dr. Kelly Rivers) 15-110, an intro course in fundamental computing principles. F21-secondary: (~300 students, ~30 TAs), S22-primary: (~200 students, 23 Tas), F22-secondary: (~380 students, ~30 TAs), S24-equal: (~80 students)

Instructor **BHCI Capstone, Undergraduate Project in HCI (05571),** *[F23-S24, F22-S23]*
School of Computer Science, Carnegie Mellon University
- Instructor for the BHCI Capstone, the final senior project for HCI majors.
- F22-S23: (~65 students, 2 TAs, 14 clients), F23-S24: (~55 students, 2TAs, 11 clients)

Advisor **Senior Thesis Advisor in the Psychology Department,** *Fall 2023 – Spring 2024*

Instructor **Introduction to Data Structures (15-121),** *[F23, F22, F21]*
School of Computer Science, Carnegie Mellon University
- Instructor for the course 15-121, an introduction to data structures and algorithms in Java.
- F21: (~50 students, 5 TAs), F22: (~50 students, 5 TAs), F23: (~50 students, 5TAs)

Instructor **CS Pedagogy (15-890)**, *[F23, S22, S20]*
School of Computer Science, Carnegie Mellon University
- Co-instructor (with Dr. Michael Hilton/Dr. Charlie Garrod) of 15-890, a course targeted toward students interested in improving their ability to teach with a focus on CS.
- S20: (~7 students), S22: (~12 students), F23: (~10 students)

Instructor **Collaborative Research Through Projects (99-520):**
ELAIDA: Experiential Learning using Artificial Intelligence and Data, *Summer 2023*
Carnegie Mellon University
- Co-instructor with Ganesh Mani 5 teams (2 teams directly) in conducting research.

Instructor **Introductory Programming for MHCI (no course nr.),** *[Summer 2023, Summer 2022]*
School of Computer Science, Carnegie Mellon University
- Instructor of the pre-master's introductory course to programming, Python, JS/HTML/CSS.
- Summer 2022: (~30 students, 1 TA), Summer 2023: (~35 students, 1 TA)

Instructor **Independent Study (05-589),** *Summer 2023*
School of Computer Science, Carnegie Mellon University
- Mentoring a student on project: Melanoma Clinical Trials Connection.

Instructor **The Role of Technology in Learning in the 21st Century (05438/05838),** *[S23]*
School of Computer Science, Carnegie Mellon University
- Instructor for the course 05438, F21: (~30 students, 1 TA)

Instructor **Principles of Computing (15-110),** *[Summer 2019, Summer 2020]*
School of Computer Science, Carnegie Mellon University
- Instructor (with Norman Bier) of the course 15-110, a course in fundamental computing principles.
- 2019: (~49 students), 2020: (~70 students)

Head TA **User-Centered Research and Evaluation (UCRE),** *Fall 2018*
School of Computer Science, Carnegie Mellon University
- Supported curriculum redesign; created learning goals, projects, and assessments. Designed grading rubrics and graded individual & group work. Taught recitation (20 students), held OH.

TA **Programming Usable Interfaces (PUI),** *Spring 2018*
School of Computer Science, Carnegie Mellon University
- Taught recitation (~20 students). Designed labs and homework assignments, created quiz and

exam questions, designed grading rubrics, graded student work, held office hours.

TA **Algorithms and Data Structures (CS150),** *2013 – 2014*
Department of Computer Science, Lafayette College
- Led and oversaw lab sessions, built some assignments and lab worksheets.

GUEST LECTURES

Graduate research seminar on Second Language Acquisition, *Fall 2019*
Department of Modern Languages, Carnegie Mellon University
Lecture on my work on ClassInSight and using data to help support teachers in their teaching.

Programming Usable Interfaces (PUI), *Fall 2019, Spring 2018*
Human-Computer Interaction Institute, Carnegie Mellon University
Lecture on how to prototype with the InVision technology. (Fall 2019)
Lecture on user-centered design methods and examples of their use in my research (Spring 2018)

STUDENT MENTORING AND ADVISING

Throughout my Ph.D., I had the honor of working with outstanding undergraduates and masters, from CMU and other schools. Their majors were interdisciplinary, including CS, HCI, design, business, statistics, etc. The majority of the students were from groups underrepresented in STEM.

Undergraduate Independent Study and Research Assistants, *Fall 2020*
Mentored one undergraduate student in their Independent Study, three undergraduate students and one master student as Research Assistants on the ClassInSight project.

Research Experience for Undergraduates (REU), *Summer 2020*
Mentored two undergraduate students in their REU projects (ClassInSight and ProI for Professionals).

Undergraduate Independent Study and Research Assistants, *Spring 2020*
Mentored a master student in their Independent Study and six undergraduate and master students as Research Assistants on the ClassInSight project.

Undergraduate Independent Study and Research Assistants, *Fall 2019*
Mentored sixteen undergraduate and master Research Assistants on the ClassInSight project.

Research Experience for Undergraduates (REU), *Summer 2019*
Mentored five students as they conducted research and software development on ClassInSight.

Undergraduate Independent Study, *Fall 2018, Spring 2019*
Mentored two undergraduate students each semester in their Independent Study projects on ClassInSight.

Research Experience for Undergraduates (REU), *Summer 2016*
Mentored five students on research and software development of an Intelligent Tutoring System.

LearnLab Summer School at CMU, ITS Track, *Summer 2015 - 2018*
Supervised small group projects in developing Intelligent Tutoring Systems for various domains.

PROFESSIONAL DEVELOPMENT

2018 - present **Future Faculty Program,** *Eberly Center Teaching Excellence & Education Innovation, CMU*
Attended various professional development workshops and seminars which covered a wide range of topics on teaching and learning. Received feedback twice on my teaching through classroom observations and microteaching workshops. Completed a statement of teaching philosophy project.

2015 - present **Program for Interdisciplinary Education Research (PIER)**, *Carnegie Mellon University*
Attended research seminars from various educational researchers. Networked and received mentoring from educational experts. Took a range of courses on education, including *Research Methods for the Learning Sciences (05-748)*, *Educational Goals, Instruction and Assessment (85-738)*, *Scientific Research in Education (85-736)*, *Personalized Online Learning (05-832)*.

Fall 2018 **Computer Science Pedagogy (15-539/15-890)**, *Carnegie Mellon University*

Took this course which was aimed at helping students improve their ability to teach computer science.

RESEARCH EXPERIENCE

2019 - 2021 *Project:* ClassInSight: Practical Classroom Sensing at Scale for Instructor Professional Development
with Dr. Amy Ogan, Dr. Chris Harrison, Dr. Yuvraj Agarwal, *Carnegie Mellon University*

2018 *Project*: Improving Introductory Computer Programming Instruction by Supporting Conceptual Learning with an Intelligent Tutoring System
with Dr. Vincent Aleven, *Carnegie Mellon University*

2015 - 2018 *Project*: Helping Teachers Help Students: Teacher's Use of Intelligent Tutoring Systems Analytics to Improve Learning
with Dr. Vincent Aleven and Dr. Bruce M. McLaren, *Carnegie Mellon University*

Summer 2015 *Project*: Integrating Errors into the Lynnette Cognitive Tutor, an ITS for Linear Equation Solving
with Dr. Vincent Aleven, *Carnegie Mellon University*

Summer - Fall 2014 *Project*: Integrating Intelligent Tutoring Systems in MOOCs (Massive Open Online Courses)
Undergraduate Student Researcher with Dr. Vincent Aleven, *Carnegie Mellon University*

Spring 2014 *Project*: Creating tutors to support geology field projects
EXCEL Student Researcher with Dr. Chun Wai Liew, *Lafayette College*

January 2013 *Project*: Computational Modeling of Fish Evolution
EXCEL Student Researcher with Dr. Chun Wai Liew, *Lafayette College*

Summer 2013 *Project*: Studying the dynamic behavior of JavaScript objects
Undergraduate Student Researcher with Dr. Barbara G. Ryder, *PROLANGS@VT, Virginia Tech*

Summer 2013 *Project*: Using HMM and the Viterbi Algorithm on the Iterated Diner's Dilemma game
EXCEL Student Researcher with Dr. Chun Wai Liew, *Lafayette College*

CONFERENCE PUBLICATIONS

C1. Patidar, P., Ngoon, T., **Xhakaj, F.**, Behari, N., Vogety, N., Ogan, A., Harrison, C., Agarwal, Y., & Zimmerman, J. Edulyze: Meaningful Learning Analytics for Real-World Classrooms. *Under review*.

C2. **Xhakaj, F**., Ngoon, T., Ogan, A. ClassInSight: Motivating Goal-Setting & Behavior Change for College Instructors. *Under submission.*

C3. **Xhakaj, F.**,Ogan, A., et al. (2021) Investigating teacher data needs in terms of teacher immediacy and nonverbal behaviors. *In Proceedings of the 15th ISLS 2021 conference.*

C4. Ahuja, K., Shah, D., Pareddy, S., **Xhakaj, F.**, Ogan, A., Agarwal, Y., Harrison, Ch. (2021) Classroom Digital Twins with Instrumentation-Free 6DOF Gaze Tracking. *In **CHI 2021** conference.*

C5. Ahuja, K., Kim, D., **Xhakaj, F**., Varga, V., Xie A., Zhang, S., Townsend, J. E., Harrison, Ch., Ogan, A., & Agarwal, Y. (2019). EduSense: Practical Classroom Sensing at Scale. *Proc. **ACM Interact. Ubiq. Technol**.*

C6. **Xhakaj, F.**, & Aleven, V. (2018). Towards Improving Introductory Computer Programming with an ITS for Conceptual Learning. In *International Conference on AI in Education, **AIED 2018**,* pp. 535-538.

C7. 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 International Conference on Learning Analytics and Knowledge, **LAK 2018**,* pp. 41-50.

C8. **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 *Proceedings of the European Conference on Technology Enhanced Learning, **EC-TEL 2017**, pp.* 315-329.

C9. **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 *Proceedings of the International Conference on Artificial Intelligence in Education, **EC-TEL 2017**, pp.* 582-585.

C10.   **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 *Proceedings of the European Conference on Technology Enhanced Learning, EC-TEL 2016, pp.* 340-354.

C11.   Aleven, V., **Xhakaj, F.**, Holstein, K, & McLaren, B. M. (2016). Developing a teacher dashboard for use with ITSs. In *Proceedings of the International Workshop on Teaching Analytics, EC-TEL 2016*.

C12.   Holstein, K., **Xhakaj, F.**, Aleven, V., & McLaren, B. M. (2016). Luna: A dashboard for teachers using intelligent tutoring systems. In *Proceedings of the International Workshop on Teaching Analytics, EC-TEL 2016*.

C13.   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 *Proceedings of the International Conference on Artificial Intelligence in Education, AIED 2015,* pp. 525–528.

C14.   Liew, C. W., & **Xhakaj, F.** (2015). Teaching a complex process: Insertion in Red Black Trees. In *Proceedings of the International Conference on Artificial Intelligence in Education, AIED 2015,* pp. 698–701.

C15.   **Xhakaj, F.**, & Liew, C. W. (2015). A new approach to teaching Red Black Trees. In *Proceedings of the Conference on Innovation and Technology in Computer Science Education, ITiCSE 2015*, pp. 278–283.

JOURNAL PUBLICATIONS

J1.   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

T1.   **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.

RESEARCH TALKS

2018   PAWS Lab, Intelligent Systems Program: University of Pittsburgh, *Towards Improving Introductory Computer Programming with an ITS for Conceptual Learning.*

2018   PIER Seminar: *Supporting Conceptual Learning with an ITS for Improving Introductory Computer Programming Instruction.*

2018   AIED 2018 Conference: *Towards Improving Introductory Computer Programming with an ITS for Conceptual Learning.*

2017   PIER Seminar: *Dashboard, Dashboard On the Wall, What About My Students Don't I Know?*

2017   EC-TEL 2017 Conference: *Effects of a Teacher Dashboard for an Intelligent Tutoring System on Teacher Knowledge, Lesson Planning, Lessons and Student Learning.*

2016   EC-TEL 2016 Conference: *How Teachers Use Data to Help Students Learn: Contextual Inquiry for the Design of a Dashboard.*

LEADERSHIP AND SERVICE

EXTERNAL PROFESSIONAL ACTIVITIES AND SERVICE

Spring 2023   Invited Guest Speaker at the West Windsor Plainsboro High School South (New Jersey) Artificial Intelligence Club

Spring 2022   Panelist on the "Women & gender minorities in Computing: Academic Interviews Panel", USC (University of Southern California)

2020   Panelist on a graduate school panel for undergraduate women, *Georgetown University*

2021   Reviewer for Computing Education Research papers**,** *SIGCSE 2021*

2019 Reviewer for Late Breaking Work papers, *CHI 2019*

2018 Student volunteer, *SIGCSE 2018*

INSTITUTIONAL AND DEPARTMENT SERVICE

2019 - present	**Co-director/co-founder of the Community for Teaching and CS Education SCS, CMU** Working with teaching professors and students to build and develop a community at CMU for faculty and students who are interested in teaching and CS Education
Spring 2023	**Organizer and panelist of the yearly *Teaching in Academia Panel* in SCS, CMU** Organized the yearly panel with teachers and professors who teach in the Pittsburgh area to answer graduate students' questions on opportunities around teaching in academia, the job market, etc.
Spring 2023	Completed Mental Health First Aid training (MHFA) and received certification.
Fall 2022	Panelist on the "Eberly Teaching & Learning Summit: Alumni Panel", *CMU*
Fall 2022	Panelist on the "OurCS Conference Research & Grad School Panel", *SCS, CMU*
Fall 2022	Guest Speaker in the Job market mentoring group, *HCII, SCS, CMU*
Spring 2022	**Organizer and panelist of the first *Teaching in Academia Panel* in SCS, CMU** Organized the very first panel with teaching faculty across SCS to answer graduate students' questions on opportunities around teaching in academia, the job market, etc.
Fall 2021	Panelist on the "Panel for the Academic Job Market", *SCS, CMU*
2020	Member of SCS Student Teaching Award Selection Committee, *Carnegie Mellon University*
2017, 2019	Graduate school panel moderator and conference organizer in the OurCS conference
2017 - 2019	**Women in SCS**, leader and in organizing committee, *Carnegie Mellon University*
2017 - 2018	SCS4ALL Ph.D. Initiative, organizing committee, *Carnegie Mellon University*
2019 - 2020	Student representative on the HCII **Curriculum Committee**
2019 - 2020	Student representative on the HCII **Faculty Hiring Committee**
2018 - 2019	HCII Ph.D. Tea Time Social Organizer
2016 - 2017	HCII Ph.D. Monthly Lunch Gatherings Organizer
2015, 2019	HCII Prospective Ph.D. Student Open House Organizer
2012 - 2015	Founder and President, Women in Computing, *Lafayette College*
2014 - 2015	President of Upsilon Pi Epsilon International Honor Society for the Computing and Information Disciplines, *Lafayette College*

SKILLS

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