Simon Chu

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA   May 2020 - Present
Ph.D. in Software Engineering
Institute for Software Research
School of Computer Science

Wilkes University, Wilkes-Barre, PA   Aug. 2016 - May 2020
Bachelor of Science in Computer Science
Minor in Mathematics
GPA: 3.94/4.00

RESEARCH EXPERIENCE

Carnegie Mellon University   May 2020 – Present
Ph.D. Student, ABLE Research Group   *Pittsburgh, PA*

· Exploring applying formal methods in designing safety-critical self-adaptive/cyber-physical systems.
· Investigating N-way feature interaction in cyber-physical systems via a drone case study.
· Developed Python-based general-purpose model checker prototype for Signal Temporal Logic (STL).

Carnegie Mellon University   May 2019 – Aug. 2019
Research Intern, REUSE Program, Wyvern Project   *Pittsburgh, PA*

· Designed typing rules for safe recursive initialization construct and dynamic composition mechanism.
· Implemented option-type syntactic sugar, enhanced the language expressiveness.
· Improved code reliability and efficiency by refactoring parser and lexical analyzer rules.
· Maintained Wyvern language documentation and continuous integration (CI) configuration.
· Presented at the REU student research presentation session at Carnegie Mellon University.

Wilkes University   May 2017 – May 2019
Undergraduate Researcher, Math and CS Dept.   *Wilkes-Barre, PA*

· Designed the training, testing and evaluating framework for ML models using Python API.
· Developed the scikit-learn models using SVM for classifying animal images with over 80% accuracy.
· Implemented scripts that facilitate distributed model training, evaluation, and statistical analysis.
· Trained and improved face-cropping Haar Cascades, with over 85% face detection accuracy.
· Presented at Eastern College Science Conference (ECSC) 2018 at Ithaca College.

Wilkes University   Mar. 2018 – May 2019
Researcher/Developer, Integrative Media Dept.   *Wilkes-Barre, PA*

· Developed 3D virtual campus tour VR application for HTC VIVE using Unity platform.
· Explored different navigation methods for porting between 500+ high-resolution 3D images/videos.
· Conducted user experience (UX) research using A/B testing for the VR application.
· Reduced loss for format conversion by applying algorithmic enhancement, improved user experience.

WORK EXPERIENCE

Wilkes University   May 2017 – May 2019
System Manager/Lab Assistant, Math and CS Dept.   *Wilkes-Barre, PA*

· Maintained Computer Science departmental networks, LDAP server, and lab computers.
· Implemented scripts to automate routine updates, software installation, system accounts, and backups.
· Assisted with large-scale Ubuntu system migration, hardware replacement, and programming contests.

LSEO, LLC   Jan. 2018 – May 2018
Software Engineering Intern   *Wilkes-Barre, PA*

· Assisted the content marketing team with the development of 5+ clients' web-based projects.
· Analyzed the traffic data, conducted keyword/ranking algorithm research using SEMrush.
· Monitored web traffic, detected malicious network requests and vulnerabilities in clients' projects.

Wilkes University   Aug. 2017 – May 2020
Teaching Assistant, Math and CS Dept.   *Wilkes-Barre, PA*

· Updated lab procedures and software manuals for introductory computer science courses.
· Assisted students with troubleshooting algorithmic errors and debugging the programs.

Wilkes University   Aug. 2017 – May 2020
Resident Assistant/Student Mentor, Office of Residence Life   *Wilkes-Barre, PA*

· Served as a leader for over 40 residents by planning 20 community and career development events.
· Responsible for the safety and residential needs of 340 residents throughout the academic year.

PRESENTATIONS

"Exploring the Feature Interaction Problem in Cyber-Physical Systems"   Nov. 2020
ISR Departmental Seminar (SSSG), Carnegie Mellon School of Computer Science   *Pittsburgh, PA*

"Towards a Language for Better Code Reusability"   Aug. 2019
REU in Software Engineering (REUSE '19), Carnegie Mellon University   *Pittsburgh, PA*

"Image Classification Dataset and API Design for SVM Experimentation"   April 2018
Eastern College Science Conference (ECSE '18), Ithaca College   *Ithaca, NY*

SERVICE

Admissions Committee Member   Jan. 2021 – Feb. 2021
REU in Software Engineering (REUSE), Carnegie Mellon University   *Pittsburgh, PA*

Social Coordinator   May 2019 – Aug. 2019
REU in Software Engineering (REUSE '19), Carnegie Mellon University   *Pittsburgh, PA*

Math/Computer Science Mentor   Nov. 2019
STEM Discovery Day, Wilkes University   *Wilkes-Barre, PA*

Robotics/Programming Mentor   July 2017
Women Empowered by Science Summer Camp (WEBS '17), Wilkes University   *Wilkes-Barre, PA*

SKILLS

Programming	Python, Java, C/C++, HTML/CSS/JavaScript, Swift, Go, Haskell, LaTeX
Specialty	Compiler Design, Deep Learning, Web/iOS Development, UI Design
Languages	English, Mandarin, Elementary-Spanish, Elementary-French