Alex Day

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Education

Clemson University — Clemson, SC
Ph.D. Computer Science *(GPA: 4.0/4.0)* — September 2020

Clarion University of Pennsylvania — Clarion, PA
B.S. Computer Science *(cum laude)* — August 2016 - December 2019

Research Experience

Clemson University — Clemson, SC
Graduate Research Assistant — September 2020

- Working with Dr. Ioannis Karamouzas on learning multi-robot navigation from human data
- Developing a pipeline for efficient quantative evaluation and visualization of collision avoidance techniques

University of Arizona — Tucson, AZ
CAT Vehicle Research Assistant (REU) — May 2019 - August 2019

- Created a domain specific language to create autonomous vehicle paths with 3 other students
- Developed a verification server in Flask that proved the safety of a given path
- Prepared and presented research at the UROC conference at the University of Arizona
- Extensively tested the language and verification in both simulation and on hardware

Publications

Alex Day, Chris Mankos, Soo Kim, and Jody Strausser. CoNFET: an english sentence to emojis translation algorithm. In *35th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators (PACISE)*. PACISE, April 2020. Forthcoming

Alex Day and Soo Kim. A comparison of automatic extractive text summarization techniques. In *34th Annual Spring Conference of the Pennsylvania Computer and Information Science Educators (PACISE)*, pages 98, 102. PACISE, April 2019

Talks

Alex Day, Chris Mankos, Soo Kim, and Jody Strausser. Sentence compression using emoji summarization. Penn-York Undergradaute Research Conference, November 2019

Alex Day. The VEX robotics programming language for competing. Clarion University Open Day for Pennsylvania Rural Robotics Competitors, April 2018

Alex Day. Introduction to Git, GitHub, and contributing to open source. Clarion University Association of Information Technology Professionals, October 2018

Alex Day. How to utilize the UnitTest module in Python 3. Clarion University Association of Information Technology Professionals, February 2019

Poster Presentations

Sam Hum, **Alex Day**, and Riley Wagner. Verification and creation of autonomous vehicle trajectories for non-experts with reactive design-time feedback and sensor-based response. Undergraduate Research Opportunities Consortium at the University of Arizona, August 2019

Projects

English to Emoji Translation *Python, NLTK, spaCy*

- Devised novel algorithm for translating sentences into emoji counterparts for information compression
- Created a new sentence splitting algorithm based on part-of-speech and dependency relations
- Accepted for publication in PACISE Journal in 2019 (delayed by COVID)

Collision Avoidance Evaluation *Python, C++, Cython*

- Developed a Cython wrapper for the official C++ PowerLaw simulation
- Implemented interaction overhead and energy efficiency calculations to evaluate simulations
- Created an efficient pipeline for evaluating different algorithms on various agent configurations

Experience

Clemson University — Clemson, SC
Lead Graduate Teaching Assistant — September 2020

- Assist faculty members with instruction using remote learning technologies
- Lead two lab sections of 30 students to reinforce new software development techniques

JGMS Inc. — Grand Rapids, CO
Data Scientist (R&D) — May 2020 - September 2020

- Designed neural networks for massive document classification and bid prediction with Keras in Python
- Developed REST API using Flask to expose an endpoint for document summarization and classification
- Conducted market research to determine market gaps for future projects

Komatsu Mining Ltd. — Franklin, PA
Student Engineer — May 2018 - August 2018 and December 2018 - January 2019

- Implemented a logging management tool in C# to be used on all Komatsu Mining equipment
- Created data analysis tools in Excel VBA and Python to assist with debugging of all mining machines
- Augmented the Longwall Shearer testbed with a powercycle scheduler built on the Raspberry Pi platform

Skills

Programming Languages:	Python, Java, C#, C/C++, HTML/JavaScript/CSS
Technologies:	Linux, Git, LaTeX, Tableau, Robot Operating System/Gazebo, SQL

Leadership and Involvement

Association of Information Technology Professionals — Clarion, PA
August 2016 - December 2019
President — August 2018 - May 2019
Vice President — August 2017 - May 2018

Clarion University Programming Team — Clarion, PA
Member — August 2017 - December 2019

Clarion University Crystallography Contest — Clarion, PA
Seminar Assistant and Founder — August 2017 - December 2019

Awards

Clarion University CS Dept. Student of the Month — December 2019
Clarion University Deans List — Fall 2018, Spring 2019
Elizabeth Ross AITP Scholarship — 2018, 2019
George Lewis Scholarship — 2018, 2019
Joy Scholarship — 2016