Alex Day

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Education

Clemson University — Clemson, SC
Ph.D. Computer Science — August 2020 – Present

Clarion University of Pennsylvania — Clarion, PA
B.S. Computer Science, Minor in Chemistry (*cum laude*) — September 2016 – December 2019

Research Experience

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

- Worked within a team to develop a simple way to create autonomous vehicle paths with WebGME for use in a 4th grade robotics curriculum
- Developed a verification server in Flask that performed reachability analysis on a given path to ensure code safety
- Prepared and presented research at the UROC conference at the University of Arizona
- Extensively tested the project in both simulation and on the Cognitive and Autonomous Test (CAT) Vehicle

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

Powerlaw Collision Avoidance Application to Autonomous Vehicles *Python, OpenAI Gym*

- Implemented the PowerLaw collision avoidence model in Python
- Extended the PowerLaw model to support an existing autonomous vehicle framework

Sentence to Emoji Translation *Python, Spacy, NLTK*

- Devised an algorithm that produces a representative sequence of emojis for a given input sentence
- Developed new algorithms for efficient sentence partitioning using syntax tree compression

Clemson University of South Carolina
Graduate Teaching Assistant

Clemson, SC
August 2020 – Present

- Assist with lecture and hold office hours for Software Development Foundations
- Conduct remote lab sessions of 30 students

JGMS Inc.
Data Scientist

Grand Junction, CO
April 2019 – Present

- Researched and implemented text summarization techniques for massive amounts of data to create a document similarity and indexing system
- Performed market gap analysis in order to propose various research projects

Komatsu Mining Ltd.
Student Engineer

Franklin, PA
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 test bed with a power-cycle scheduler built on the Raspberry Pi platform

Clarion University Library
Lab Manager

Clarion, PA
Feburary 2018 – December 2019

- Rapidly devised python scripts to automate logging of library items that saved 100s of hours of data entry
- Supervised a group of 10 student workers providing IT assistance to library patrons

Clarion University
Tutor

Clarion, PA
February 2018 – May 2019

- Retaught students complex topics from Data Science and various C# courses
- Held with office hours for Intro to Programming II (C#) & Object Oriented (Java) classes

SKILLS

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

LEADERSHIP AND INVOLVEMENT

Association of Information Technology Professionals

Clarion, PA
August 2016 – December 2019

President

August 2018 – May 2019

- Handle all of club's administrative responsibilities
- Organize travel to and from conferences and contests
- Hosted multiple hour long seminars on topics including version control and robotics

Vice President

August 2017 – May 2018

- Assisted President in running weekly meetings to update members on activities of the group
- Worked with treasurer to balance club's finances
- Hosted multiple hour long seminars on topics including version control and unit testing

Clarion University Programming Team
Co-Lead Programmer

Clarion, PA
August 2017 – December 2019

- Competed at multiple programming competitions all over Pennsylvania
- Hosted weekly meetings to practice solving a competitive programming algorithms

Clarion University Crystallography Contest
Seminar Assistant and Founder

Clarion, PA
August 2017 – May 2018

- Taught elementary school students about crystallography in a lab-like setting during seminars

- Formalized contest's rules along with other members
- Assisted with creation of the contest's website

Awards

Clarion University CIS Dept. Student of the Month	December 2019
Dean's List	Fall 2018, Spring 2019
Elizabeth Ross AITP Scholarship	2018, 2019
George Lewis Scholarship	2018, 2019
Joy Scholarship	2016