Adeel Ahmad

adeel.ahmad@cern.ch
adl1995.github.io

Education

Bachelor of Computer Science — August 2014 - Present
National University of Computer and Emerging Sciences — Islamabad, Pakistan

- Thesis: "Analysis of Structure from Motion Techniques"

Work experience

Technical Student — September 2018 - Present
European Organization for Nuclear Research (CERN) — Geneva, Switzerland

- Working on WLCG Security Operations Center with CERN Computer Security team
- Automating the configuration and deployment of network analysis software packages using Puppet
- Using Koji and GitLab CI for streamlining the build process of architecture-independent RPMs
- Enhancing features and usability of an incident response web application system

Software Developer — May 2018 - August 2018
Google Summer of Code 2018 (Boost C++ Libraries) — (Remote)

- Improved the accuracy of geodesic algorithms for nearly antipodal points
- Generalized the implementation using C++ template parameterization
- Benchmarked the performance against existing geodesic algorithms

Software Developer — May 2017 - August 2017
Google Summer of Code 2017 (Open Astronomy) — (Remote)

- Designed and developed a Python astronomy package for Hierarchical Progressive Surveys
- Implemented a simple and precise drawing algorithm using projective transformation and nearest-neighbor interpolation techniques
- Wrote parameterized test cases and used Travis CI for contiguous integration

Full-Stack Web Developer — January 2017 - April 2017
Upwork — (Remote)

- Developed large-scale PHP Laravel software systems
- Created dynamic front-end interfaces using Vue.js and React

Data Scraper, Web Developer — June 2016 - December 2016
Fiverr — (Remote)

- Used Beautiful Soup and regular expressions for scraping data off websites and performed data analysis using Pandas
- Integrated Selenium with PhantomJS web-driver for headless browser automation

Projects

Reconstruct3D September 2017 - May 2018

- Implemented the structure from motion pipeline using monocular images
- Applied RANSAC on SIFT keypoint matches for removing outlier points
- Visualized the result by providing a point cloud representation for the input scene

GeoLib March 2018

- Implemented various algorithms for computing distance between two points on the Earth's surface
- Used C++ template specialization to allow users define their custom data types
- Set up Doxygen for source code documentation and benchmarked the implementation against Boost Geometry algorithms

Python astronomy package for HiPS May 2017 - August 2017

- Developed a Python package for viewing astronomical figures
- Wrote parameterized test cases and used Travis CI for contiguous integration
- Applied asynchronous programming techniques for fetching tile data

MCQ Exam Checker December 2016

- Applied Gaussian blur to remove noise from the input image before applying Canny edge detection
- Performed template matching using Generalised Hough transform to find the encircled MCQ's
- Used 2D cross-correlation for character identification inside the identified MCQ option

Peer-reviewed journals

A. Ahmad, C. Deil, T. Boch, B. Sipocz, A. Donath; "A Python astronomy package for HiPS: Hierarchical Progressive Surveys", Journal of Open Source Software (in progress)

Events and conferences

Swiss Web Security Day October 2018
Bern, Switzerland

DICE Information and Enabling Technology December 2017
Lahore, Pakistan

Skills

Programming languages: Python, C++, Go, PHP, JavaScript, Assembly (x86), Bash, LaTeX
Cloud management: Puppet, GitLab CI, Amazon Web Services, Google Compute Engine
Computer vision / machine learning: OpenCV, TensorFlow, Keras, NumPy, Pandas
Web development / databases: Laravel, Django, React, jQuery, MySQL, SQLite, Apache, Nginx

Languages

English: proficient user (CEFR level: C1)
French: basic user (CEFR level: A1)
Urdu: native language

Other interests

Travelling: Recently finished a trip around southern Europe (I also maintain a travel blog)
Board games: Weekly join the CERN Board Games Club to play strategy board games
Cooking: Enjoy preparing cuisines from local and foreign regions
Reading: Interested in fictional and philosophical genres. Currently reading "1984", by George Orwell