


Adeel Ahmad

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Open-source projects

[Trip Planner](#)  [Python]


Wrote a CLI tool for filtering Google Maps places based on an input query and exported them to a CSV file (*featured*  on Hacker News.)

[GeoLib](#)  [C++, Boost]

Used C++ template specialization to implement a generalized version of distance computation algorithms.

[Edge detectors](#)  [Python]

Implemented commonly used image edge detection algorithms, including Canny edge and Marr Hildreth.

[Particle Swarm Optimization](#) 
[C++, mpack]

Implemented the PSO algorithm for constrained optimization problems in the mpack library using template metaprogramming.

Education

National University of Computer and Emerging Sciences
2014-2018 *Islamabad, Pakistan*
[fg](#)

Thesis: "Analysis of Structure from Motion Techniques" 

Toolsets

[Linux](#):

Arch, Systemd, Collectd, Bash, sed

[Programming languages](#):

C++, Python, Go, JavaScript, \LaTeX

[Computer vision / machine learning](#):

OpenCV, TensorFlow, NumPy

[Cloud management / web development](#):

Puppet, Travis CI, AWS, Django, MySQL, PostgreSQL

Interests

Kayaking, Skiing, Traveling 

Work experience

Technical Student in Computer Security **September 2018 - October 2019**
European Organization for Nuclear Research (CERN) *Geneva, Switzerland*
(*Team size: 9*)

Initiated a project on cloud automation using Puppet and streamlined the build process of RPM packages. Deployed a high-performance multi-threaded tool to monitor anomalous SSH login activity. Gathered feedback from section leader to improve the usability of a web application system.

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

Improved the accuracy of a distance algorithm for antipodal points lying on a sphere. The inaccuracy is mostly encountered in flight planning systems.

Software Developer Intern **May 2017 - August 2017**
Google Summer of Code 2017 (Open Astronomy) 

Developed a Python package to visualize and perform data analysis on astronomical images. Wrote unit tests using the Pytest framework and set up continuous integration using Travis CI.

Coursework projects

[Concurrent & Distributed Systems](#)  **April 2018**

Implemented a distributed searching algorithm using Golang and balanced the workload equally among available processes to achieve consensus.

[Deep Learning](#)  **January 2018**

Analyzed plant imagery using a convolutional neural network to perform classification of plant species.

[Digital Image Processing](#)  **December 2016**

Performed template matching using Generalized Hough transform for finding the encircled MCQ's in an exam sheet.

Events and conferences

[Thematic CERN School of Computing](#)  **May 2019**

An annual school based on the topic of high throughput distributed processing with lectures on vectorization, optimization, and effective I/O techniques for scientific applications. *Split, Croatia*

[Insomni'Hack](#) **March 2019**

A security conference which involved talks on hardware and software level exploits and a capture-the-flag event. *Geneva, Switzerland*

[Swiss Web Security Day](#) **October 2018**

A platform which brought together individuals from various technology sectors on the global topic of cyber security. *Bern, Switzerland*

Volunteer work

[CERN Open Days](#) **September 2019**

Scanned visitor badges for entrance to the CERN site and assisted visitors with a virtual reality headset activity.