

Gavin Rolls

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EDUCATION

University College London

September 2023 - September 2024

MSc. Urban Spatial Science

Current Grade: Distinction

- Student in the Bartlett Centre for Advanced Spatial Analysis
- **Coursework:** Remote Sensing, GIS, Spatial Applications with Big Data, Urban Modelling and Simulation, Quantitative Methods for Spatial Data Science, Urban Systems Theory

Georgia Institute of Technology

August 2019 - May 2023

B.S. Computer Science

GPA: 3.91 (First Class Honours) / Major GPA: 4.0

- Graduated Highest Honours with Concentrations in Human Computer Interaction and Information Internetworks
- **Awards:** Stamps President's Scholar – Georgia Tech's premier full-ride merit scholarship. 40 selected from 20,000 applicants. Selected based on the pillars of scholarship, leadership, progress, and service
- **Coursework:** Database Systems, Computer Architecture, Computer Networking, Computer Org. & Programming, Design & Analysis of Algorithms, Statistics & Applications, Applied Combinatorics, Info Visualisation

SKILLS

Spatial Science:

- Experience in spatial analysis with Python (SciPy, Matplotlib, Pandas, GeoPandas, scikit-learn), R (tidyverse, sf, ggplot2, terra, spatstat), QGIS, Google Earth Engine, SQL, Javascript (D3.js)

General Computing:

- Python, R, Java, JavaScript, HTML, CSS, Typescript, Angular, SQL, Cypress, React Native, Excel, C, C++, MATLAB

Development Tools:

- GitHub, Git, IntelliJ, Jira, Confluence, Bitbucket, Agile Development, Jenkins

Speaking & Presentation:

- Extensive experience in extemporaneous speaking and debate – Member of Outstanding Distinction of the U.S. National Debate Association, 1st ranked Lincoln-Douglas debater in Colorado
- Led Agile development team of 6 as Scrum Master
- Lectured as teaching leader (GT 1801) and assistant lecturer (INTA 3232)

WORK EXPERIENCE

Georgia Tech Japan Program in Sustainable Development

May 2023

Assistant Lecturer and Module Leader

Kobe, Japan

- Delivered lectures on geospatial analysis and remote sensing for urban boundary delineation in *INTA 3232 – Smart & Sustainable Megaregion*. Taught 25 students from multiple U.S. Universities at Kobe University
- Created lecture material to teach the fundamentals of geospatial analysis in QGIS and Earth Engine with a focus on the VIIRS sensor platform and non-remotely sensed raster datasets, and conducted GIS exercises to apply taught skills

Sustainable Megaregions Research Project

February 2021 - May 2023

Undergraduate Research Assistant

Atlanta, Georgia

- Delineated boundaries of established and emerging megaregions using NASA VIIRS and DMSP datasets in Google Earth Engine
- Designed and coded a data-first megaregions delineation tool with Earth Engine. Used the approach to perform a global search
- Analyzed and aggregated 400+ papers as part of a comprehensive literature review of megaregion literature

MessageGears

May 2022 - August 2022

Software Engineering Intern

Atlanta, Georgia

- Worked as a full stack developer on MessageGears' email marketing web app
- Created and implemented novel user interface elements using TypeScript and Angular and Improved application interface with SQL backend using REST API calls
- Wrote unit tests, view tests, and Cypress tests to improve testing coverage across the testing stack

Paul Easton Basketball

May 2020 - August 2020

Frontend Developer

Denver, Colorado

- Used React Native/React Navigation to design and build a cross-platform mobile app for Basketball trainers to upload and review player footage

PROJECTS

Visualising Mass Shootings in the U.S.

April 2022

Co-creator

- Created an interactive graphic of injuries and casualties from mass shootings in the U.S. using D3.js. Hosted at <https://gavinrolls.com/MassShootings/shootings.html>

Chess Engine

May 2021 - July 2021

Sole creator

- Created a chess engine and game visualization with Java. Selected moves with an alpha-beta pruning minimax search algorithm

PUBLICATIONS

Co-Author - Woodall et al. (2023) The Megaregion – Forms, Functions, and Potential? A Literature Review and Proposal for Advancing Research. *International Journal of Urban Sciences* 28:1, pp. 82-104.
<https://doi.org/10.1080/12265934.2023.2189156>

(Pending Review) Co-Author - Challenges in Using Satellite Data for Social Science, An Exploratory Case Study

LEADERSHIP

Georgia Tech Tour Guide

January 2021 - May 2023

Lead Guide

Atlanta, Georgia

- Assisted prospective students and families in their college process by providing campus tours as an ambassador to the Institute
- Fall 2022 Tour Guide of the semester – selected to model tour procedure to new guides

Georgia Tech Transport & Infrastructure Committee

August 2020 - May 2023

Member

Atlanta, Georgia

- Advanced student interests in transportation by lobbying for improved bus service and cycling accessibility on campus

Stamp's Scholars - Special Topics

August 2021 - December 2021

Teaching Leader

Atlanta, Georgia

- Assistant instructor for GT 1801, an orientation course for first year President's Scholars at Georgia Tech

Springmont Alumni Board

October 2020 - May 2021

Chair

Atlanta, Georgia

- Directed monthly meetings for the Alumni Committee of the Springmont School
- Planned events to foster alumni engagement and encourage financial contributions to community initiatives
- Member of Board of Trustees Development Committee