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HEIDI M HURST

SUMMARY

ACADEMIC EXCELLENCE

Graduated Cum Laude from Harvard University with BA in Applied Mathematics.

Received multiple awards for excellence in GIS at Harvard University.

Currently enrolled in MSc GIS program at University College London.

TECHNICAL EXPERIENCE

Developed and evaluated algorithms for use across emergency management, intelligence, and defense sectors.

Experience as software developer building, testing, and deploying custom cloud-based software solutions in SAFe Agile framework for US Government Agency clients.

EDUCATION

UNIV COLLEGE LONDON

MSC GEOGRAPHIC INFORMATION SCIENCE (GIS)

October 2017 - September 2018 (est)

Taught MSc course comprising an emphasis on scripting languages, broad range of technical modules, and substantial independent research work.

Emphasis on fundamentals of geographic information science theory and implementation, including practice with real-world data and extensive scripting in R and Python.

Coursework will include:

Structures & Algorithms - fundamental vector, raster algorithms and implementation
Principles of Spatial Analysis - use of R for significant statistical geospatial analysis
GIS Principles & Technology - scripting in Python for geospatial tool development
Databases & Data Management - including SQL, NoSQL, PostGIS experience
Spatio-temporal Data Mining, Image Analysis, Network & Locational Analysis, …

HARVARD UNIVERSITY

BA APPLIED MATHEMATICS, FOCUS IN NAVIGATION AND GEOSPATIAL ANALYSIS

September 2011 - May 2016

Cum Laude in Field *Overall GPA: 3.736/4.0*

Rigorous BA degree in applied mathematics, focused on proof-based learning and algorithm implementation with optional modules in navigation and geospatial analysis.

Coursework included:

CS50:Intro to Computer Science, Graph Theory & Combinatorics, Applied Linear Algebra & Big Data (Matlab), Differential Equations, Optimization (AMPL), Statistics, Advanced Geographical Information Systems (Python), Celestial Navigation, …

WORK EXPERIENCE

BOOZ ALLEN HAMILTON

SOFTWARE ENGINEER + CONSULTANT

August 2016 - August 2017

Developed algorithms and custom state-of-the-art software using open source and commercial packages in Java, JavaScript, Node, HTML for deployment in AWS cloud-based environment for US Government Agency client using Scaled Agile Framework.

Supported US Government clients to develop high budget technical programs by running data analyses and creating briefings, including market surveys, state of the art technology reviews, process workflow reviews, and technical validation.

FEMA

DHS-STEM ANALYST (INTERN)

June 2015 - August 2015

Created award-winning algorithm to determine suitability of potential Disaster Recovery Center locations using geospatial metrics and feedback from program managers in the field. Elements of method incorporated into standard suite of Federal Emergency Management Agency cartographic products. (See *Awards.*)

Invited to speak to FEMA employees and partner agencies at ESRI User Conference, Region 1 FEMACorps Teams, and FEMA Analytics working group to share methods and results. (See *Talks & Articles.)*

HARVARD MATH DEPT — **COURSE ASSISTANT (MULTIVARIABLE CALCULUS & LINEAR ALGEBRA)**

January 2014 - May 2014

Taught weekly section of *Math 23b: Multivariable Calc & Linear Algebra* to 10 students.

Engaged students in weekly help sessions and facilitated "proof parties" to increase comfort with rigorous proof-based mathematics.

Provided oral and written feedback for student assignments and held office hours.

VOLUNTEERING

SHENANDOAH MTN RESCUE GROUP — **PRE-CALLOUT QUALIFIED MEMBER**

September 2016 - August 2017

Practice deployments of GIS technology, dispatch responsibilities for urban and wilderness search and rescue missions.

Participate in trainings on evacuation procedure, land navigation, search skills, etc.

AWARDS

July 2017 Booz Allen Hamilton Collective Ingenuity Award
April 2016 Howard T. Fisher Prize For Excellence in GIS
March 2016 Harvard ESRI Development Center Student of the Year Award

CONFERENCES ATTENDED

November 2016 Search and Rescue GIS 8 Conference
July 2016 NIH NIEHS Disaster Research Response Workshop
June 2016 ESRI User Conference
April 2016 Harvard Center for Geographic Analysis Conference
June 2015 Geospatial Intelligence (GEOINT) Symposium

TALKS, POSTERS, AND ARTICLES

ESRI USER CONFERENCE — **FEMA SPECIAL INTEREST GROUP MEETING SESSION: ARE WE ASKING THE RIGHT QUESTIONS?**

28 June 2016

Discussed past success in Disaster Recovery Center allocation research as case study for using GIS and spatial algorithms to drive creative and proactive planning processes.

Addressed FEMA Special Interest Group including FEMA Chief Information Officer, FEMA National Geospatial Coordinator, state and regional partners.

HARVARD UNIVERSITY — **CENTER FOR GEOGRAPHIC ANALYSIS ABCD GIS SEMINAR: CODING EFFICIENT DISASTER RECOVERY**

21 April 2016

Explored advantage of using Python-based algorithms and scripting techniques to automate products and expedite decision making in disaster scenarios. Advocated pre-planning and custom ArcPy scripts.

Addressed members of the Harvard GIS Community, including founding members of Harvard Center for Geographic Analysis.

GIRL'S ANGLE BULLETIN — **MATH IN YOUR WORLD: MATH TO THE RESCUE**

April/May and June/July 2016

Paid contributor to Girl's Angle Bulletin, an online publication aimed at encouraging an interest in math and science among girls grades 5-12.

Explained research on allocation of FEMA Disaster Recovery Centers for non-technical audience to inspire interest in STEM careers and applications.

HARVARD UNIVERSITY — **LOST PERSON BEHAVIOR: A SIMPLE RANDOM WALK SIMULATION**

14 November 2014

Developed algorithm to model the behavior of lost persons on land using a simple random walk model accounting for personal factors (age, activity type, etc). Ran Python simulations based on idealized terrain.

Presented poster to experts in navigation from academia, public, and private sectors at Lost & Found: A Science Symposium about Navigation at Radcliffe Institute for Advanced Study.