SCOTT EMMONS

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EDUCATION

BS, *GPA 4.0/4.0*, Mathematics and Computer Science — Expected May 2019
University of North Carolina at Chapel Hill

SUMMARY OF RESEARCH SKILLS

Algorithm analysis * parallel programming * run-time optimization * statistical computing * supercomputer scripting * temporal, geospatial, statistical, topical, and network visualization * experimental design

RESEARCH INTERESTS

Network analysis * complex systems * community detection * algorithms * information theory * visual analytics * information visualization * online learning dynamics * scientometrics

AWARDS AND HONORS

Academic

- Robertson Scholars Leadership Program, highly selective undergraduate merit scholarship providing unique "dual citizenship" at UNC and Duke University, leadership development workshops, and funding for three summers, 2015-2019, $250,000
- National Merit Scholar, chosen among top 0.6% of PSAT test takers, 2015, $2,500
- Honors Carolina, selected as top 10% of incoming UNC class, 2015-2019
- Honorable Mention Paper, M^3 Math Modelling Challenge of the Society for Industrial and Applied Mathematics, among top 6% of submitted papers, 2015

Competitive

- 4^{th} in nation and 2x state champion in case competition, Business Professionals of America, 2013-2014
- 10^{th} in nation, computer programming concepts, Business Professionals of America, 2013
- 2x state champion, financial math and analysis, Business Professionals of America, 2013-2014

RESEARCH EXPERIENCE

Research Intern

Cyberinfrastructure for Network Science Center, Indiana University, Bloomington, IN — September 2013 - Present

- Collaborated on international research project to map scientific publication including designing, programming, running, and writing up the published results of experiments
- Optimized computational experiments on supercomputer via parallel programming for 100x speed increase
- Analyzed massively open online course data using statistical computing and visual analytics, interpreted results, coauthored and published paper detailing key findings
- Led independent research project to map consumer purchasing behavior involving mining a survey database with over 1,000 fields, developing an interactive visualization to explore the data, and writing a report to communicate findings
- Reviewed books *Visual Insights: A Practical Guide to Making Sense of Data* and *Atlas of Knowledge: Anyone Can Map*, published by MIT Press
- Created geospatial map showcasing 13 worldwide showings of the short film "Humanexus"

Undergraduate Researcher

Mucha Group, Carolina Center for Applied Mathematics, UNC, Chapel Hill, NC — November 2015 - Present

- Developed and presented research ideas to foster group collaboration
- Studied graduate-level computer science coursework in reading group

Research Assistant

Arnosti Lab, Marine Sciences, UNC, Chapel Hill, NC — October 2015 - February 2016

- Developed interactive software to visualize microbial community composition data hierarchically
- Programmed scripts to automate supercomputing workflows for DNA sequencing

Visiting Scholar
Graph and Map Algorithms Group, University of Arizona, Tucson, AZ December 2014 - January 2015
- Collaborated directly with Dr. Stephen Kobourov to design algorithm analysis study
- Implemented computational experiments and gathered initial data for results that were later published

PROFESSIONAL EXPERIENCE

Service Committee Member
Robertson Community Coordinators, Chapel Hill, NC August 2015 - May 2016
- Organized Robertson Scholar volunteer opportunities
- Oversaw logistics and funding for 2 community service projects

Cofounder and Owner
Sparq Creative Solutions, LLC, Bloomington, IN December 2013 - December 2015
- Created strategic plans, brand identities, logos, and websites to grow local businesses
- Consulted with clients to identify needs and plan projects to meet business objectives
- Formulated contracts and closed sales deals with new clients
- Employed independent contractors to utilize relevant expertise
- Executed internal business operations by keeping the books, filing taxes, and coding company website

TEACHING AND MENTORING

Teaching Assistant
Sunflower County Freedom Project, Sunflower, MS May 2016 - July 2016
- Developed and taught standard-aligned 8th- and 9th-grade math curriculum resulting in an average increase of 9% on the state standard test after five weeks
- Envisioned, planned, and taught a three-day coding seminar for middle school students that used active learning with puzzles to introduce the fundamental principles of computer science
- Created spreadsheet framework that will form the basis of future data analytics at the Freedom Project
- Led fitness group in dieting and exercise that resulted in average mile time decrease of over 60 seconds

Cofounder
Life Skills Academy, Bloomington, IN January 2014 - May 2015
- Negotiated terms with school principal to run program 3 times a week during the school day
- Instilled "life skills" in mentor-mentee pairs totaling 50 students to support classroom achievement

Student Liaison
Information Visualization Massively Open Online Course, Bloomington, IN Spring 2014, Spring 2015
- Facilitated online discussion of nearly 2,000 enrolled students from over 50 different countries
- Reviewed class materials such as examinations to ensure quality, accuracy, and suitability for students

PUBLICATIONS AND PRESENTATIONS

Publications
- **Scott Emmons**, Robert Light, & Katy Börner: "MOOC Visual Analytics: Empowering Students, Teachers, Researchers, and Platform Developers of Massively Open Online Courses." *Journal of the Association for Information Science and Technology (JASIST), Forthcoming.*
- **Scott Emmons**, Mike Gallant, Stephen Kobourov, & Katy Börner: "Analysis of Network Clustering Algorithms and Cluster Quality Metrics at Scale." *PLoS ONE, 2016.*

Oral Presentations
- **Scott Emmons**, Robert Light, & Katy Börner: "MOOC Visual Analytics: Empowering Students, Teachers, Researchers, and Platform Developers of Massively Open Online Courses." Interactive Intelligent Systems Open House. Bloomington, IN, 2015. **Best Presentation Award**
- **Scott Emmons**, Robert Light, & Katy Börner: "MOOC Visual Analytics." Cyberinfrastructure for Network Science Center Open House. Bloomington, IN, 2014.
- **Scott Emmons**: "Mapping the Consumer Product Space." Cyberinfrastructure for Network Science Center Open House. Bloomington, IN, 2013.