

## Education

### Northeastern University, Boston, MA, USA

(12/2020)

Ph.D. in Computer Science, Advisor: Seth Cooper

**Dissertation:** “Designing Effective Interfaces for Motivating Engagement in Crowdsourced Image Labeling”

### National Technical University of Athens, Athens, Greece

(06/2015)

Degree in Electrical and Computer Engineering (5-year study program, M.Eng. equivalent)

## Research Experience

### Microsoft Research, New York City, NY, USA

(03/2021 – 06/2023)

*Postdoctoral Researcher, Computational Social Science Group*

*References: Dan Goldstein & Jake Hofman*

- **[Project]** Worked on the Perspectives Engine project on building AI tools for statistical literacy.
- **[Project]** Conducted research on the impact of LLM powered search tools on consumer research and decision making.
- **[Technical Contributions]** Built pipelines for extracting & analyzing data from large knowledge bases (e.g., Wikidata). Developed computational models in Python and R for re-expressing complex numbers, improving decision making.
- **[Technical Contributions]** Created virtual lab systems in React, Node.js, JavaScript and TypeScript. Automated the end-to-end flow of experiments, from launch, to monitoring, statistical analysis and visualizations, using Python and R workflows.
- **[Impact]** **First author publication at CHI. Product deployments to Microsoft PowerPoint, Word and Outlook.**

### Northeastern University, Boston, MA, USA

(09/2015 - 12/2020)

*Research Assistant, Khoury College of Computer Sciences*

*References: Seth Cooper & Sara Wylie*

- **[Projects]** Created Cartosco.pe, an open-source crowdsourcing platform for environmental justice, disaster response and citizen science, Tile-o-Scope Grid, an image matching web game, and Tile-o-Scope AR, an Augmented Reality tabletop toolkit.
- **[Contributions]** Led an interdisciplinary team of developers, academics, designers and non-profits across all stages of research, from idea to product. Set research agendas, implemented features and launched key global events.
- **[Technical Contributions]** Conducted research studies using quantitative and qualitative methods. Developed Python workflows for extracting spatial data from available APIs. Built models for analyzing and visualizing user data in R and JS.
- **[Impact]** **Open-sourced platform used by non-profits in the U.S. and Nigeria reaching thousands of users. Multiple publications on its impact.**

### Microsoft Research, New York City, NY, USA

(05/2018 - 08/2018, 05/2019 - 08/2019)

*Research Intern, Computational Social Science Group*

- **[Project]** Worked on the Perspectives Engine project about generating helpful analogies for unfamiliar numbers.
- **[Technical Contributions]** Designed and developed an online crowdsourcing platform and database for generating perspectives for helping people understand unfamiliar numbers encountered in news and other sources.
- **[Technical Contributions]** Developed gamified interfaces for crowd ideation and explored the impact of gamification in eliciting high quality reference objects for re-expressing complex numerical information.
- **[Impact]** Conducted A/B testing on multiple aspects of the platform that led to significant improvements in quality of generated perspectives, resulting in product deployments.

## Selected Publications

- **Sofia Eleni Spatharioti**, Daniel G. Goldstein, Jake M. Hofman, (2024) *Using Open Data to Automatically Generate Localized Analogies*. To Appear: Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems.
- **Sofia Eleni Spatharioti**, David M. Rothschild, Daniel G. Goldstein, Jake M. Hofman, (2023) *Comparing Traditional and LLM-based Search for Consumer Choice: A Randomized Experiment*. Preprint.
- **Sofia Eleni Spatharioti**, Eliza Boetsch, Scott Eustis, Kutub Gandhi, Matt Rota, Archana Apte, Seth Cooper, Sara Wylie, (2022) *An Effective Platform for Crowd Classification of Coastal Wetland Loss*, In: Conservation Science and Practice.
- Kutub Gandhi, **Sofia Eleni Spatharioti**, Scott Eustis, Sara Wylie and Seth Cooper, (2022) *Performance of Paid and Volunteer Image Labeling in Citizen Science — A Retrospective Analysis*, In: 10th AAAI Conference on Human Computation and Crowdsourcing. (HCOMP2022)

- **Sofia Eleni Spatharioti**, Sara Wylie and Seth Cooper, (2021) *Exploring Q-Learning for Adaptive Difficulty in a Tile-based Image Labeling Game*, In: 3rd IEEE Conference on Games. (COG2021)
  - Kutub Gandhi, Josh Aaron Miller, **Sofia Eleni Spatharioti**, Archana Apte, Bornha Fatehi, Sara Wylie and Seth Cooper, (2021) *A Comparison of Augmented Reality and Digital Versions of a Citizen Science Game*, In: 16th International Conference on the Foundations of Digital Games. (FDG2021)
  - **Sofia Eleni Spatharioti**, Bornha Fatehi, Melanie Smith, Avery Rosenbloom, Josh Aaron Miller, Magy Seif El Nasr, Sara Wylie, Seth Cooper, (2020) *Tile-o-Scope AR: An Augmented Reality Tabletop Image Labeling Game Toolkit*, In: 15th International Conference on the Foundations of Digital Games. (FDG2020)
  - **Sofia Eleni Spatharioti**, Sara Wylie and Seth Cooper, (2019) *Using Q-Learning for Sequencing Level Difficulties in a Citizen Science Matching Game*, In: Extended Abstracts of the 2019 Annual Symposium on Computer-Human Interaction in Play. (CHIPLAY 2019)
  - **Sofia Eleni Spatharioti**, Rebecca Govoni, Jennifer S. Carrera, Sara Wylie and Seth Cooper, (2017) *A Required Work Payment Scheme for Crowdsourced Disaster Response: Worker Performance and Motivations*, In: 14th International Conference on Information Systems for Crisis Response and Management. (ISCRAM 2017)
  - **Sofia Eleni Spatharioti** and Seth Cooper, (2017) *On Variety, Complexity, and Engagement in Crowdsourced Disaster Response Tasks*, In: 14th International Conference on Information Systems for Crisis Response and Management. (ISCRAM 2017)
- Best Student Paper Award Nomination**

## Selected Projects

- **Perspectives Engine**: Created a scalable system for improving statistical literacy in news and other media by automatically generating numerical analogies tailored to different audiences. Trained and evaluated computational models using open-source data for relevance signals. Conducted experiments measuring model performance on two global markets, achieving 80% preference rates for U.S. audiences and 59% for French audiences.
- 📁 **Cartosco.pe**: Created a web crowdsourcing platform for image labeling using Node.js, MySQL, JavaScript, AngularJS, CSS and HTML. Conducted data analysis using R and Python. Empowered environmental justice non-profits to set up projects using different task templates, upload data and generate real-time results and map visualizations.
- 🎮 **Tile-o-Scope Grid**: Developed an image matching web game for image labeling in Unity using C#. Developed novel Reinforcement Learning algorithms for serving level difficulties that led to increased engagement in environmental projects.
- 👥 **Tile-o-Scope AR**: Led a team of developers and designers in developing an Augmented Reality tabletop toolkit for image labeling using Unity. Led user studies on the impact of collaboration/competition in user experience and engagement.
- **Time Zone Perspectives**: Collaborated with a multidisciplinary team on building a web tool for predicting and auto-completing time zone information. Our tool has been successfully deployed on Microsoft Outlook.

## Work Experience

**Velti**, Athens, Greece

(10/2014 - 03/2015)

*Junior Software Engineer, Innovation Department*

Worked on *OPENi*, a European Union ICT Project. *OPENi* is an open-source, web-based framework for integrating applications with cloud-based services and personal Cloudlets. Created an Authentication Server, as well as a fully functional web user interface for data visualization for *OPENi*.

## Technical Skills

### Languages

English: Fluent  
French: Good  
Greek: Native Speaker

### Programming Skills

Python, R, JavaScript, TypeScript  
Node.js, AWS, SQL, Pandas, Git  
Shiny, D3.js, Plotly, Power BI  
CSS, HTML, AngularJS, React  
C#, Unity  
Figma, Adobe Photoshop

## Awards, Service & Misc.

- 📅 PC Member: FDG ['17, '21]. Reviewer: CHI ['22- '24], IEEE Transactions on Games '20, CHI PLAY '19, ISCRAM '18.
- 🏆 Awarded: Khoury College of Computer Sciences PhD Community Service award (2021).
- 🏆 Awarded: Dissertation Completion Fellowship from Northeastern University (2020).
- 📅 Organizer: NEU's Khoury PhD Women Group, Khoury PhD Social Hour, MSR-NYC Giving Committee.
- 🏆 Nominated: Outstanding Graduate Student Research Award (2018).
- 🏆 Invited to present Cartosco.pe at a citizen science exhibit at the Cleveland Museum of Natural History (2017).