Sofia Eleni Spatharioti

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**Education**

**Northeastern University,** Boston, MA, USA (09/2015 - 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 (09/2009 - 06/2015)

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

**Work Experience**

**Microsoft Research,** New York City, NY, USA (03/2021 – 06/2023)

*Postdoctoral Researcher, Computational Social Science Group*

*References:* [*Dan Goldstein*](mailto:dgg@microsoft.com) *&* [*Jake Hofman*](mailto:jmh@microsoft.com)

* **[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. LLM work featured on Microsoft’s New Future of Work and Microsoft Research’s AI & Productivity reports.**

**Northeastern University,** Boston, MA, USA (09/2015 - 12/2020)

*Research Assistant, Khoury College of Computer Sciences*

*References:* [*Seth Cooper*](mailto:se.cooper@northeastern.edu) *&* [*Sara Wylie*](mailto:s.wylie@northeastern.edu)

* **[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. Set research agendas, implemented features and launched key in-person and online 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.

**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**

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| **Languages** | **Programming Skills** |  |
| English: Fluent | Python, R, JavaScript, TypeScript | CSS, HTML, AngularJS, React |
| French: Good | Node.js, AWS, SQL, Pandas, Git | C#, Unity |
| Greek: Native Speaker | Shiny, D3.js, Plotly, Power BI | Figma, Adobe Photoshop |

**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**](https://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 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#. Implemented Reinforcement Learning algorithms for serving level difficulties that led to increased engagement and output levels.
* [**Tile-o-Scope AR**](https://cartosco.pe/#/home_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 deployed on Microsoft Outlook.

**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)
* **Sofia Eleni Spatharioti**, Borna 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**

**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).