# Sofia Eleni Spatharioti

Postdoctoral Researcher, Microsoft Research NYC

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I am a researcher with 8 years of experience conducting research and publishing at top venues at the intersection of Human Computer Interaction, crowdsourcing, computational social science and games. I have extensive code development and design experience, and have led and collaborated with interdisciplinary teams, ranging from non-profits, to academics and product teams. At Microsoft, my research work has been incorporated in multiple product deployments (Microsoft Word, PowerPoint, and Outlook).

## 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 - Present)

*Postdoctoral Researcher, Computational Social Science Group*

*References: Dan Goldstein & Jake Hofman*

- Working on the Perspectives Engine project on building AI tools for statistical literacy.
- Led data analysis and developed computational models using Python and R for re-expressing complex numerical information and improving decision making.
- Created web applications using React, Node.js, JavaScript and TypeScript for conducting research experiments with online participants.
- My research work has been deployed to Microsoft PowerPoint, Microsoft Word and Microsoft Outlook.

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

*Research Assistant, Khoury College of Computer Sciences*

*References: Seth Cooper & Sara Wylie*

- Created Cartosco.pe, an open-source platform for crowdsourcing 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 for image labeling.
- Led an interdisciplinary team consisting of developers, academics, designers and non-profits in setting research agendas, implementing features and launching key in-person and online events, attracting participants all over the world.
- Conducted research studies using quantitative and qualitative methods, and published papers at top venues, demonstrating how developed features led to improved crowd engagement and experience, via task variety, interface design, gamification and collaboration/competition approaches.

### Microsoft Research, New York City, NY, USA                        (05/2018 - 08/2018, 05/2019 - 08/2019)

*Research Intern, Computational Social Science Group*

- Worked on the Perspectives Engine project about generating helpful analogies for unfamiliar numbers.
- Designed and developed an online crowdsourcing platform and database for generating perspectives for helping people understand unfamiliar numbers encountered in news and other sources.
- Developed gamified interfaces for crowd ideation and explored the impact of gamification in eliciting high quality reference objects for re-expressing complex numerical information.

## Selected Publications

- **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, Borna 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**, 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**

## Selected Projects

- 🖥 **Cartosco.pe:** Developed 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:** Led a team of developers and designers in developing an Augmented Reality tabletop toolkit for image labeling using Unity and C#. Conducted user studies on the influence of AR and 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.

## Work Experience

### Northeastern University, Boston, MA, USA                                     (Fall 2019)

*Teaching Assistant, Theory and Methods in Human Computer Interaction (CS7340)*

Gave lectures and led in-class activities. Mentored students on conducting research, giving presentations about various HCI concepts, and preparing scientific papers, resulting in submissions to top tier academic conferences that year.

### Velti, Athens, Greece                                                (10/2014 - 03/2015)

*Junior Software Engineer*

Part of the 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 OPENi.

## Technical Skills

| **Languages** | **Programming Skills** | |
| --- | --- | --- |
| English: Fluent | Python, R, JavaScript, TypeScript | CSS, HTML, AngularJS, React |
| French: Good | Node.js, AWS | C#, Unity |
| Greek: Native Speaker | MySQL | Figma, Adobe Photoshop |

## Awards, Service & Misc.

- 📑 PC Member: FDG 2021, FDG 2017. Reviewer: CHI 2022, IEEE Transactions on Games 2020, CHI PLAY 2019, ISCRAM 2018.
- 🏆 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).
- 👤 Presented Cartosco.pe at a citizen science exhibit at the Cleveland Museum of Natural History (2017).