

# Nazmiye Gizem Bacaksizlar Turbic, Ph.D.

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[LinkedIn](#) | [ResearchGate](#)

## RESEARCH INTERESTS

My research interests are computational social science and data analytics. I investigate data from various social media platforms (e.g. Twitter and Facebook) and online comments/discussions forums (e.g. Disqus), understanding the structure of social networks for the influence dynamics and the spread of emotions (e.g. anger and hate), and building models with system dynamics and agent-based modeling approaches to study the relationship between interconnected variables/parameters and possible scenarios/policies.

Social network analysis • Influence dynamics • System dynamics • Agent-based modeling

## EDUCATION

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|   |                 |
|---|-----------------|
| <b>Ph.D. Software and Information Systems</b>   | 2015 - 2019     |
| College of Computing and Informatics, University of North Carolina at Charlotte (UNC Charlotte) |                 |
| <b>M.S. Industrial Engineering</b>  | 2011 - 2014     |
| Boğaziçi University, Istanbul, Turkey   |                 |
| <b>B.S. Industrial Engineering</b>  | 2006 - 2010     |
| Yıldız Technical University, Istanbul, Turkey   |                 |
| <i>Summer School at New England Complex Systems Institute, MIT, Cambridge, MA</i>               | <i>Jun 2018</i> |

## RESEARCH EXPERIENCE

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|--|----------------------------|
| <b>Postdoctoral Research Fellow</b>  | <i>May 2021 - present</i>  |
| Computational Social Science (CSS) Department, Team Data Science, GESIS – Leibniz Institute for the Social Sciences, Cologne, Germany                        |                            |
| Project: <u>Building the Future: Excelling in Computational and Quantitative Social Sciences in Turkey</u> (Social ComQuant, awarded by European Commission) |                            |
| Organizing training and workshops for social scientists at Koc University, Istanbul, Turkey  |                            |
| Developing online teaching materials for Computational Social Science methods  |                            |
| Making CSS methods accessible and transparent  |                            |
| Helping researchers to have connections with the exchange program at Social ComQuant project   |                            |
| <b>Postdoctoral Research Fellow</b>  | <i>Feb 2020 - Mar 2021</i> |
| Faculty of Social and Human Sciences, NOVA University of Lisbon, Portugal  |                            |
| Project: Political Interest Networks in Facebook Portugal (supported by the Foundation of Science and Technology, Portugal)                                  |                            |
| Collected Facebook posts and comments from the Portuguese political parties  |                            |
| Analyzed social media engagement during and beyond the political campaigns   |                            |
| Processed Facebook posts and comments for emotional analysis (e.g., hate)  |                            |
| Collaborated with researchers from different academic backgrounds  |                            |
| <b>Postdoctoral Research Fellow</b>  | <i>Feb 2019 - Feb 2020</i> |
| Santa Fe Institute, New Mexico   |                            |
| Project: Exploration-exploitation tradeoff and opinion diversity in real-world groups (supported by the National Science Foundation Program, US)             |                            |
| Created MongoDB database for articles and comments from news sites (~350GB data)   |                            |
| Preprocessed texts (articles and comments)   |                            |
| Analyzed opinion and emotion dynamics on online discussions  |                            |
| Extracted reply trees and networks to investigate emotion and opinion spread algorithms  |                            |
| Retrieved and uploaded new data to the server database every 3 months  |                            |
| <b>Research Assistant</b>  | <i>Aug 2017 - Feb 2019</i> |
| Data Science Initiative, UNC Charlotte   |                            |

Project: Center for Visual & Decision Informatics and Industry/University Cooperative Research Center (supported by the National Science Foundation Program, US)  
Presented projects from Data Science Initiative, UNC Charlotte  
Joined group meetings

**Technical Mentor**

*Aug 2017 - Feb 2019*

Complex Systems Institute and Data Science Initiative, UNC Charlotte  
Project: Python Workshops for the Carolina Fintech Hub Hackathon and Data Science Initiative  
Prepared Python workshops and gave presentations on applied projects

**Program Coordinator, Data Science for Social Good Charlotte**

*Aug 2017 - Mar 2018*

Data Science Initiative, UNC Charlotte  
Project: Data Science for Social Good Charlotte Summer Fellowship Program  
Met with potential local project partners  
Gave research talks to potential funders  
Set up communication channels for DSSG Charlotte on Twitter and LinkedIn  
Arranged and coordinated Open House meetings in Charlotte for public

**Project Manager, Data Science for Social Good Cascais, Europe**

*Jun 2017 - Aug 2017*

Data Science for Social Good Summer Fellowship Program, Europe 2017, Portugal

Project: Identifying Green Rooftops in Rotterdam to Improve Urban Planning

Lead the team of four fellows with the Municipality of Rotterdam's Data Science Team  
Managed the communication between the team and partners at the Municipality of Rotterdam  
Helped the team with providing and presenting technical reports, posters, and presentations  
Continued communication with partners for the project implementation process  
Joined training and workshops about Data Science for Social Good Fellowship Program

**Research Assistant**

*Aug 2015 - Jun 2017*

Department of Software and Information Systems and Complex Systems Institute, UNC Charlotte  
Project: Summit for Social Good 2016 and Social Good Hackathon  
Gathered information about the social good programs  
Helped with organizing and coordinating the hackathon  
Joined trainings and workshops

**Research Analyst**

*May 2015 - Jun 2015*

Department of Environmental Engineering, Boğaziçi University, Istanbul, Turkey  
Field Project: Governance and Systematic Changes Associated with Small-Scale Hydropower Production  
Studied the effects of small-scale hydropower plants on İkizdere Valley, Rize, Turkey  
Interviewed with the local people, farmers, and governors  
Modeled causal relationships between tea farmlands and hydropower plants constructions  
Analyzed statistically the collected data with R

**TEACHING EXPERIENCE**

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**Teaching Assistant at UNC Charlotte, North Carolina**

*Aug 2015 - Feb 2019*

Complex Systems Institute and Data Science Initiative *2017 - 2019*  
Graduate Course: Complex Adaptive Systems  
Department of Software and Information Systems and Complex Systems Institute *2015 - 2017*  
Graduate Course: System Dynamics  
Department of Systems Engineering and Engineering Management *2014 - 2015*  
Undergraduate Courses: Engineering Fundamentals, Systems Engineering Concepts  
Graduate Courses: Decision and Risk Analysis, Designed Experimentation

**Teaching Assistant at Bilgi University, Istanbul, Turkey**

*Sep 2013 - Jun 2014*

Department of Industrial Engineering  
Undergraduate Courses: Introduction to Industrial Engineering, Exploring Engineering, Introduction to Probability, Probability and Statistics for Engineers and Scientists

**Teaching Assistant at Boğaziçi University, Istanbul, Turkey**

*Sep 2012*

Department of Industrial and Environmental Engineering

Project: Systems Language of Ecology - A System Dynamics Atelier

(supported by the Scientific and Technological Research Council, Turkey)

System dynamics modeling with high school students from Darüşşafaka Schools

Group games that raise awareness about environmental sustainability and community building

Team projects and presentations

## PUBLICATIONS

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**Bacaksizlar Turbic, N. G.** and Galesic, M. (2020) Dynamics of Commenters' Networks across Time and Political Spectrum. (working paper)

**Bacaksizlar Turbic, N. G.** and Rosa, J. M. (2020). Engaging on Facebook in a Year of Two Major Elections: How Portuguese Political Parties Communicate with their Audience (working paper)

**Bacaksizlar, G.**, Crabtree, S., Garland, J., Grefenstette, N., Kao, A., Kinney, D., Kolchinsky, A., Marghetis, T., Price, M., Riolo, M., Shimao, H., Teufel, A., van der Does, T., Yang, V. C. (Santa Fe Institute Postdocs in alphabetical order) (2020) Greetings from a Triparental Planet. (<https://arxiv.org/abs/2011.01508>)

**Bacaksizlar, N. G.** and Galesic, M. (2019) Dynamics of Commenters' Networks across Time and Political Spectrum. In Proceedings, The 8<sup>th</sup> International Conference on Complex Networks and their Applications (Lisbon, Portugal).

**Bacaksizlar, N. G.**, Shaikh, S., and Hadzikadic, M. (2019) Anger in Protest Networks on Twitter. In Proceedings, 13<sup>th</sup> International Conference on Web Based Communities and Social Media (Porto, Portugal).

**Bacaksizlar, N. G.** and Hadzikadic, M. (2017) Modeling Social Media Effect on Social Movements. *Journal of Policy and Complex Systems*, 3(2), 14-30.

von Briesen, E., **Bacaksizlar, N. G.**, and Hadzikadic, M. (2017) Modeling Genocide at the System and Agent Levels. *Journal of Policy and Complex Systems*, 3(2), 31-48.

Martin, R. and **Bacaksizlar, N. G.** (2017). Modeling the Dynamics of an Urban Emergency Medical Services System. In *Proceedings, 35<sup>th</sup> International Conference on System Dynamics Society (Cambridge, MA)*.

**Bacaksizlar, N. G.** and Barlas, Y. (2015). The Feedback Dynamics between Poverty and Education Opportunity: Vicious Circle of Poverty. In *Proceedings, 33<sup>rd</sup> International Conference on System Dynamics Society (Cambridge, MA)*.

**Bacaksizlar, N. G.** and Onsel, N. (2013). Modeling the Dynamics of Methyl-Mercury Biomagnification. In *Proceedings, 31<sup>st</sup> International Conference on System Dynamics Society (Cambridge, MA)*.

Yavaş, M. and **Bacaksizlar, N. G.** (2012). Financial Sustainability of Social Security Institutions in the Presence of Aging Populations. In *Proceedings, 30<sup>th</sup> International Conference on System Dynamics Society (St. Gallen, Switzerland)*.

## INVITED TALKS and PRESENTATIONS

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### Political Behavior in Online Networks

Department of Economics Seminar, Boğaziçi University, Istanbul, Turkey

Dec 24, 2019

### Modeling Human Behaviors

Data Science and Policy Group, NOVA - School of Business and Economics, Lisbon, Portugal

Oct 15, 2019

### Understanding Anger Contagion in Protest Networks on Twitter

Group of AI for People and Society, Instituto Superior Técnico, University of Lisbon, Portugal

Apr 12, 2019

### Protest Networks on Twitter

Mar 13, 2019

JSMF-SFI Postdocs in Complexity Conference V: Lost in Translation, Santa Fe Institute, NM

**Emotion Contagion in Digital-Age Social Movements** Oct 25 - 28, 2018  
Computational Social Science Conference, Santa Fe, NM

**Modeling Social Media Effect on Civil Revolutions** Apr 12 - 14, 2017  
Complexity-Based Analytics and Policies for Social Good, Washington, D.C.

## ACADEMIC and COMMUNITY SERVICES

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Mentor, St. John's College, Santa Fe, NM 2019 - 2020  
Event Volunteer, Santa Fe Institute's InterPlanetary Festival Jun 2019  
Organization Committee Member, Complexity and Policy Studies Conference 2017 - 2020  
Communication Editor, Journal on Policy and Complex Systems 2017 - 2020  
Graduate Student Representative, College of Computing and Informatics, UNC Charlotte 2016 - 2018  
Graduate Life Fellow, The Graduate School, UNC Charlotte 2016 - 2017  
Graduate Teaching Assistant Fellow, UNC Charlotte Feb, Aug 2015  
Event Volunteer and Judge, North Carolina Science Olympia Feb 2015  
Event Volunteer, 30<sup>th</sup> International Conference on System Dynamics Society Jul 2012

## SOFTWARE SKILLS

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### Programming Languages

Python: *Matplotlib, NLTK, NetworkX, NumPy, Scikit-learn, SciPy, Pandas, PyCX, PyMongo*  
R (less experienced)

### Other tools

Database: *MongoDB*  
System Dynamics Modeling: *Vensim, Stella, Simul8, Arena*  
Agent-based Modeling: *NetLogo*  
Network Analysis: *Gephi*  
Typesetting: MS Word, Latex

## SELECTED GRANTS, FELLOWSHIPS, and HONORS

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Travel/Summer School Grant, Data Science Initiative, UNC Charlotte June 2018  
Tuition Waiver Award (GASP), UNC Charlotte 2014 - 2019  
Graduate and Professional Student Government Travel Grant, UNC Charlotte 2017, 2018  
CRA - Women Travel/Conference Grant, Grad Cohort for Women 2018, San Francisco Apr 2018  
UNC Charlotte Graduate Life Fellowship 2016 - 2017  
Istanbul Bilgi University Teaching Assistantship Grant 2013 - 2014

## LANGUAGES

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### Turkish

Mother tongue

### English

Full professional proficiency

### Portuguese

Beginner

## REFERENCES

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### Mirta Galesic, Ph.D. (Postdoc research supervisor)

Professor, Cowan Chair in Human Social Dynamics at the Santa Fe Institute  
External Faculty at the Complexity Science Hub in Vienna, Austria  
Associate Researcher at the Harding Center for Risk Literacy  
Email: galesic@santafe.edu

**Mirsad Hadzikadic, Ph.D.** (Ph.D. research advisor)

Professor, Software and Information Systems

Director, Complex Systems Institute

College of Computing and Informatics, University of North Carolina at Charlotte

Email: mirsad@uncc.edu

**Samira Shaikh, Ph.D.** (Ph.D. thesis committee member)

Assistant Professor, Computer Science Department and Department of Psychology

College of Computing and Informatics, University of North Carolina at Charlotte

Email: samirashaikh@uncc.edu

**Fikret Adaman, Ph.D.** (M.S. thesis committee member)

Professor, Department of Economics

Boğaziçi University, Istanbul, Turkey

Email: adaman@boun.edu.tr