



# Danial Vahabli

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I am a young researcher interested in applying Mathematical and Computational tools such as Game Theory, Agent-Based Modelling, Statistics, Statistical Physics, and Machine Learning to investigate Social Systems.

## Education

Ph.D in Sociology | 2022 - Present  
*Stony Brook University, New York, USA*  
CGPA 4/4

Bachelor of Science in Physics | 2018 -2022  
*Middle East Technical University, Ankara, Turkey*  
CGPA 3.76/4  
Ranked in the top 3% of the Department  
Concentrated in Mathematical Physics

Minor In Sociology | 2020 - 2022  
*Middle East Technical University, Ankara, Turkey*  
CGPA 4/4

High School Pre-University (Senior Year) | 2017 - 2018  
*22 Behmen Ankara, Ankara, Turkey*  
CGPA 19.09/20  
Ranked First in the School

High School Diploma | 2014 - 2017  
*National Organization for Development of Exceptional Talents, Urmia, Iran*  
CGPA: 18.91/20

## Research Experience

Graduate Fellow at Institute for Advanced Computational Sciences at Stony Brook University under the supervision of Prof. Jason J. Jones  
August 2022 - Present  
Studying online identity through Twitter data using NLP tools.

Intern of Prof. Tamás Vicsek (Online)  
*April 2021 - June 2022*  
Investigating the collective motion of agents in a medium with obstacles

Intern at Center for Complex Network Research, Northeastern University, Boston, USA. Under the supervision of Prof. Albert-László Barabási. (Online)  
*November 2021 - February 2022*  
Worked on the science of success project.  
studied the factors leading to the academic success of scholars.

Undergraduate Research Assistant at Simply Complex Lab, Bilkent University, Ankara. Under the supervision of Prof. Serim Ilday  
*August 2020 - February 2022*  
studied the collective behavior of polystyrene particles dispersed water

Senior Project, Under the supervision of Prof. Hande Toffoli  
*October 2021 - January 2022*  
Project Title: Exploring Descriptors and Machine Learning  
Compared different methods for predicting the physical properties of molecules given their structure

Undergraduate Research Assistant at Prof. Alpan Bek's Lab  
*September 2019 - June 2020*  
Developed a LabView program to control an experimental setup

# Research Interests

Social Complexity, Computational Social Science, Identity, Social Media analysis, Network Science, Social Networks Analysis, Collective Behaviour, Collective Motion

# Publications

- Ü Seleme Nizam, Ghaith Makey, Michaël Barbier, S Süleyman Kahraman, Esin Demir, Ehsan E Shafigh, Sezin Galioglu, *Danial Vahabli*, Sercan Hüsnügil, Muhammed H Güneş, "Dynamic evolution of hyperuniformity in a driven dissipative colloidal system" 2021 J. Phys.: Condens. Matter
- *Danial Vahabli*, Tamas Vicsek, "Emergence of synchronised rotations in dense active matter with disorder", Communications Physics

# Skills

- Advanced In Python
  - Advanced In CUDA library which is a parallel/GPU Computing Library provided by NVIDIA.
  - Advanced In QISKIT.
  - Advanced In Contextual and Word Embedding models such as BERT, BERTweet, and Word2Vec
- Advanced In MATLAB
- Familiar with LabView
- Familiar with NetLogo
- Advanced in Adobe Premiere Pro, Adobe Photoshop, Adobe Audition

# Internship

- Summer Intern at Koc University, Istanbul, Turkey under the supervision of Prof. Özgür E. Müstecaplıoğlu (Summer 2020)
  - Joined Lectures on Quantum Simulations for biology, information, and energy systems.
- Member of QTurkey. (September 2019 - June 2020)
  - Organized workshops on Quantum Computing
    - Qmentor on Ted University's Quantum Computing Workshop

# Language

- English
  - IELTS: Overall: 8/9, Reading 9, Listening: 8.5, Speaking: 7.5, Writing: 7.5 | Test Date: 21/09/2021
  - The Official language of education is English at my home university. (METU)
- Persian (Native)
- Turkish (Fluent)

# Awards and Scholarships

- beneficiary of the prestigious graduate fellowship of the Institute for Advanced Computational Sciences.
- High Honor Student at the Physics Department. (Spring 2018-Spring 2021)
- Ranked 3rd In the Physics Department. (2018-2019)
- 50% Tuition Fee Merit-Based Scholarship (2020-2021)
- 100% Tuition Fee Merit-Based Scholarship (2021-2022)
- Beneficiary of TUTÜBİTAK (Scientific and Technological Research Council of Turkey) Scholarship for my Work With Prof. Serim Ilday.

# Teaching and Outreach

- Teaching Assistant of Soc201 - Research Methods course at Stony Brook University, Sociology Department
- Private tutor for Highschool and college-level mathematics and physics since 2018
- Popular Science Youtube Channel Owner: Danbaft
  - +5.5k Subscribers
  - Persian
  - Covering Popular Physics Subjects
- Popular Science Youtube Channel Owner: Sci-POV (Scientific Point of View)
  - English
  - Covering Applied Mathematics and Complexity Science Subjects

# Leadership and Extra Curricular Activities

- Directing Board of METU Physics Society
  - Responsible for METU Physics Society Youtube Channel (+5.5k)
- Directing Board of METU Hip-Hop Society
  - Break-dance Instructor
- Former Member of METU Media Club
  - Photographer
- Content Creator for Anka Theater Group and Dian Art Society