Chanattan Sok

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Current Position

I am a master student in Computer Science at École normale supérieure (ENS) de Rennes, in France. I am interested in strategic agents for negotiation, multi-agent coordination and cooperation, or decision-making (aid) in general. I like to apply science to societal concerns, or to study social behaviors.

I have been using game and social choice theories in economics and public policies, and agent-based modelling to study human and robotic behaviors. Recently, I have been interested in (MA)RL and recommender systems.

Education

ENS Diploma in Computer Science - École normale supérieure de Rennes, France	Aug 2022 - Aug 2026
B.Sc. in Fundamentals of Computer Science - École normale supérieure de Rennes	Aug 2022 – Aug 2023
2nd year of B.Sc. in Computer Science - Sorbonne University, Paris, France	Sept 2021 - May 2022
• Ranked 5th/172 in computer science and mathematics.	
Preparatory classes to Grandes Écoles - Lycée Albert Schweitzer, Raincy, France	Sept 2020 - May 2021

Research Positions

Research Assistant, LAMSADE (Dauphine–PSL, Paris) — May–Aug 2025
Fairness in railway networks: graph theory and social choice. Supervised by J. Lang, A. Novaro, F. Sikora. — GitHub
- Python software to compute equity indices on editable railway networks.
- Proposed and evaluated fairness metrics on GIS-based real railway networks (e.g., France vs Germany).

Research Fellow, City Science Lab (HCU Hamburg & IRD & MIT Media Lab) — Feb–May 2025
Urban digital twins and ABM for climate policy in Hamburg (2040s). Supervised by A. Grignard, R. Herzog. — GitHub
- GAMA-based urban model using GIS data for policy support; collab. with Hamburg Climate Authority.
- Presented at Digital Urban Twins 2025.

Research Assistant, CHROMA (Inria & INSA Lyon) — Sept–Dec 2024
Resolving pedestrian spatial conflicts with ABM & social choice. Supervised by O. Simonin. — GitHub
- Designed CNM model (negotiation-based pathfinding) outperforming SFM and CBS-MAPF.
- CNM shows up to 10 times faster-computed solutions than CBS-MAPF, and as efficient, with human-like behavior.

Research Assistant, Programming Languages Group (Aarhus Univ., Denmark) — May–Aug 2024
Java type inference and reduction in Flix. Supervised by M. Madsen.
- Proposed novel Java type representations; improved Flix's modularity.
- Implemented Java interoperability in Flix compiler, made in Scala 2.

Research Assistant, SHAMAN (IRISA, Univ. Rennes & Thales) — Sept 2023–May 2024
WebAssembly for data management in serverless environments. Supervised by L. d'Orazio. — GitHub
- First-author paper at SSDBM 2024 (<30% acceptance).
- Developed "Blossom" to benchmark out-of-the-web Wasm vs native Rust join operations.

Student Research Fellow, ENS Rennes & Anticor — Nov 2023–May 2024
Anti-corruption tooling: data, UX/UI and LLMs. Supervised by J. Perez. — Press article
- Designed assistant tool for lawyers using existing LLMs and structured data (SQL, pandas).
- Laid foundations for interdisciplinary AI x law collaboration with Anticor NGO.

Research Assistant, MAS Team (LIP6, Sorbonne Univ., CNRS) — May–July 2022
ABM modeling of international negotiations. Supervised by N. Maudet, A. Beynier. — GitLab
- Re-implemented and extended significantly Earnest's negotiation model (Putnam's two-level game) using Mesa in Python. Research showed counter-intuitions on multi-agent deliberation.
- Joined as a participant NEGOCLIM with CES economists (e.g., Zuber, Rusinowska).

Projects

NEGOCLIM project (summer 2023)   [Website]

The project brings together researchers from economy, CS, humanities to study climate negotiations. It is funded by the CNRS. I participated during a research internship by proposing a generic negotiation model between agents.

An ENS Rennes - Anticor NGO (Law x CS) project (2023 - 2024)   [GitHub]

Helped as a research associate detect fraud in public procurement using CS techniques with Anticor.

Winner – Palm'Hackathon ISTIC, Univ. Rennes (2023)   [GitHub]

Built a game in team in Rust on "investigation" theme in under 24h. Ranked 1st among 8 teams.

Freelance developer (2015-2021) — *over 10 repositories including hackathons, ABM*   [GitHub]
models, and Java/Python/Rust/C++ projects

For each of my work, I try to code a tool or software to automate protocols, and ease work continuation with visuals. Developed Java Swing/FX automation tools: isometric map editor, scrapers, data pipelines, UI software (visualization and editing, e.g., graphs). Crypto-oriented blockchain project made in C, 2D games, e.g., war of tanks in C++.

Publications

Resolution and simulation of spatial conflicts between pedestrians based on   June 2025
social choice theory

Chanattan Sok, O. Simonin. ECAI 2025, Bologna, Italy — Under review

Resolution and simulation of spatial conflicts between pedestrians based on   May 2025
social choice theory

Chanattan Sok, O. Simonin. JFSMA 2025, Dijon, France — *To be presented*

WebAssembly Serverless Join: A Study of its Application   July 2024

C. Sok, L. d'Orazio, R. Tekin, D. Tombroff. SSDBM 2024, Rennes
10.1145/3676288.3676305

Teaching

Tutor founder, Univ. Rennes – ISTIC   Sept 2023–Mar 2024

Founded CS/maths tutoring program for bachelor students. Led and organized sessions.

Guest lecturer, CalPoly (California)   Jan 2024

Lecture on ABM and negotiation models in MAS course. Invited by Pr. F. Kurfess.

CPES science tutor (maths/CS), Lycée Châteaubriand, Rennes   Sept 2023–Mar 2024

Tutoring in selective preparation program (CPES).

Tutor in general science (Cordées de la Réussite), Rennes   Sept 2023–Mar 2024

Mentored high school students from underrepresented backgrounds.

Teaching assistant, Collège Évariste Galois, Paris   Sept 2021–Mar 2022

Taught math/science classes and assisted with classroom management. Selective program.

Private CS/Maths tutor (freelance)   2015–2024

Taught Python, Java OOP, C/C++, algorithms to students from middle school to university.

Additional Experiences and Activities

Hi! PARIS Summer School, École Polytechnique   2025

Tutorials on Reinforcement Learning, Recommender systems.

Co-president, Oenology Club, ENS Rennes   Sept 2023–Mar 2024

Led wine-tasting events, presentations, and budget management.

Tutor Founder, Tutorat ISTIC, Univ. Rennes   Sept 2023–Mar 2024

Organized CS/Maths tutoring sessions for B.Sc. students and liaised with administration.

Finalist, ENS Rennes Eloquence Contest.   2023

Treasurer, RJMI Rennes 2023   Oct 2022–Mar 2023

Led treasury management in a major STEM outreach event for high school girls, promoting CS and Maths excellence to advance equal opportunities in higher studies.

Languages

Tech: Java 7/8, Python, Scala 2, C, C++, SQL, OCaml, Rust, Coq, GAMS
Non-tech: French (native), English (proficient), German (notions)