Abridged CV
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Gustavo H. Santos

Gustavo Santos is an undergraduate student in Computer Engineering at the Federal University of Technology – Paraná (UTFPR), Brazil, and a former research intern (Dec 2025 – Mar 2026) in the TRiBE team at Inria Saclay, France, under Prof. Aline Carneiro Viana. He has worked since 2023 under the supervision of Prof. Thiago H. Silva on urban computing and data science, with a focus on human mobility analysis, LLM-based urban simulation, and the evaluation of how realistic simulated mobility is. He has co-authored 15 peer-reviewed publications at venues such as ACM SIGSPATIAL, NetMob, ASONAM, KDD (UMC), WebMedia and the Journal of Internet Services and Applications, and develops open-source research software, including Fastkit-Mobility, En-AgentSociety and CityBehavEx. He is a winner (1st place) of the 38th Paraná Science and Technology Prize.

CONTACT

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APPOINTMENTS

2025-26 **Research Intern**, TRiBE Team (Dec 2025 – Mar 2026)
Inria Saclay – Institut National de Recherche en Informatique et en Automatique, France
Advisor: Prof. Aline Carneiro Viana

2023 - Undergraduate Researcher (Scientific Initiation)
Urban Computing and Data Science, advisor: Prof. Thiago H. Silva
Federal University of Technology – Paraná (UTFPR), Curitiba, Brazil

EDUCATION

2023-27 B.Sc. in Computer Engineering (expected 2027)
Federal University of Technology – Paraná (UTFPR), Brazil
GPA: 0.9241 / 1.0. Relevant areas: data science, user modeling, urban computing
Active member of a long-term undergraduate research project

PUBLICATIONS

Peer-reviewed papers: 9 | Demos, abstracts, workshops: 6

Peer-reviewed Papers

15. 2026 **G Santos**, A C Viana, T H Silva. When Plausible Is Not Realistic: Evaluating Human Mobility in LLM-Based Urban Simulation. *ACM SIGSPATIAL 2026*.
14. 2026 **G Santos**, A C Viana, T H Silva. Do LLM Agents Reproduce Human Mobility Laws? *NetMob 2026*.
13. 2026 **G Santos**, A C Viana, L Pappalardo, T H Silva. Fastkit-Mobility: A High-Performance, DataFrame-Agnostic Library for Mobility Analysis. *NetMob 2026*.
12. 2025 **G Santos**, M Delgado, D Silver, T H Silva. Where Next? A Behavioral and Explainable Framework for City and Neighborhood Recommendation. *WebMedia 2025*.

11. 2025 **G Santos**, M Delgado, T H Silva. Mapping Urban Mobility with Interest Networks: Cross-Platform and User Behavior Insights. *NetMob 2025 (Main Track)*.
10. 2025 **G Santos**, M Delgado, T H Silva. Decoding Urban Interest: The Roles of Purpose, Transportation and Spatial Scale in City Mobility. *NetMob 2025 (Data Challenge Track)*.
9. 2025 F R Gubert, **G Santos**, M Delgado, D Silver, T H Silva. Urban Cultural Signature with Web Data: A Case Study with Google Places Venues. *Journal of Internet Services and Applications*.
8. 2025 **G Santos**, F R Gubert, M Delgado, T H Silva. Modeling Interest Networks in Urban Areas: A Comparative Study of Google Places and Foursquare Across Countries. *Journal of Internet Services and Applications*.
7. 2024 F R Gubert, **G Santos**, M Delgado, D Silver, T H Silva. Culture Fingerprint: Identification of Culturally Similar Urban Areas Using Google Places Data. *ASONAM 2024*.

Demos, Extended Abstracts and Workshop Papers

6. 2026 **G Santos**, A C Viana, T H Silva. En-AgentSociety: Observable and Reproducible LLM-Based Urban Simulation at Regional Scale. *ACM SIGSPATIAL 2026 (Demo Track)*.
5. 2025 **G Santos**, M Delgado, D Silver, T H Silva. CityHood: An Explainable Travel Recommender System for Cities and Neighborhoods. *ASONAM 2025 (Demo Track)*.
4. 2025 **G Santos**, M Delgado, T H Silva. Interest Networks (iNETs) for Cities: Cross-Platform Insights and Urban Behavior Explanations. *ACM KDD 2025 Undergraduate and Masters Consortium*.
3. 2024 **G Santos**, M Delgado, T H Silva. Modelagem do Interesse por Áreas Urbanas Usando Redes Sociais Baseadas em Localização. *WebMedia 2024 (Extended Abstracts)*. **(First Place Award)** *
2. 2024 **G Santos**, F Gubert, M Delgado, T H Silva. Redes de Interesse: comparando o Google Places e Foursquare na captura da escolha de usuários por áreas urbanas. *CoUrb, SBRC 2024*.
1. 2024 F Gubert, **G Santos**, M Delgado, D Silver, T H Silva. Criação de Assinatura Cultural de Áreas Urbanas com Estabelecimentos Geolocalizados na Web. *CoUrb, SBRC 2024*. **(Third Place Award)** *

* Awarded at the corresponding conference or workshop (see Awards).

AWARDS AND PRIZES

- 2025 – Winner (1st place), 38° Prêmio Paranaense de Ciência e Tecnologia, Paraná State Government, Brazil.
- 2025 – Student Travel Award, 31st ACM SIGKDD Conference (KDD).
- 2024 – First Place Award, XXX Simpósio Brasileiro de Sistemas Multimídia e Web (WebMedia).
- 2024 – Third Place Award, VIII Workshop de Computação Urbana (CoUrb), SBRC.

SOFTWARE

- **Fastkit-Mobility** (`fastmob`): High-performance, Rust-accelerated, DataFrame-agnostic library for mobility analysis – GitHub, Python package (40K downloads)
- **En-AgentSociety**: Open-source, observable and fault-tolerant LLM-based urban simulator that logs prompts, agent states and trajectories and exports them for mobility validation. Accepted as a demo at ACM SIGSPATIAL 2026 – GitHub, Project website, Docs
- **CityBehavEx**: Scalable, empirically validated, LLM-assisted urban behavior simulation platform with a Rust-backed engine and a web dashboard for replaying and validating synthetic trajectories. EACL Demo Track submission – GitHub, Demo video
- **CityHood**: Explainable travel recommender system for cities and neighborhoods – GitHub
- **H3-Cities**: H3 hexagonal grid from Uber applied to urban studies, interactive web demo – Demo, GitHub
- **Open source**: 30+ contributions to GitHub projects (QA testing, documentation, accessibility, feature ports) – github.com/gefgu

SKILLS

Programming languages: Python, JavaScript/TypeScript, Rust, Go, C/C++, SQL, HTML/CSS
Data science and ML: Pandas, Polars, Narwhals, NumPy, SciPy, PyArrow, Scikit-learn, LightGBM, LIME, SHAP, sentence-transformers, Jupyter
Geospatial and mobility: GeoPandas, Shapely, PyProj, H3, Folium, Contextily, deck.gl, MapLibre/Mapbox GL, scikit-mobility-style trajectory analysis
Visualization: Matplotlib, Seaborn, Plotly, Altair, Streamlit
LLMs and agents: LLM-based agent simulation, prompt and response schemas (Pydantic), semantic caching (Qdrant), Ollama, Google Generative AI
Data and backend: DuckDB, ClickHouse, PostgreSQL/MySQL, Parquet, FastAPI, PyO3 (Rust–Python bindings), Docker
Web and mobile: React, Astro, Vite, Tailwind CSS, Three.js, React Native/Expo, Firebase
Tools: Git, Linux, LaTeX
Languages: Portuguese (native), English (fluent)