

# RAREȘ ANGHEL-STAN

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## MISSION STATEMENT

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As a mathematician with experience as software engineer, I am driven by the pursuit of excellence. My mission is to seamlessly blend analytical rigour with technical proficiency, crafting intelligent solutions to real-world challenges. Leveraging my rich background in mathematics and expertise in software development, I am dedicated to ongoing growth and innovation, aiming to explore new possibilities and expand my skills.

## WORK EXPERIENCE

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### Software Engineer

June 2023 – March 2024

Diomedes-technologies (high-frequency trading firm)

Bucharest, Romania

- Diomedes ranks amongst the top 50 companies worldwide specializing in cryptocurrency trading.
- Managed and improved several trading systems, adapting to the unpredictable nature of the trading environment, and regularly tackling new challenges as they emerged.
- Gained insight into the business operations by visualizing extensive datasets for our research team, utilizing my statistical skills to synthesize the information. This allowed for in-depth analysis of profit and losses, system latencies, and network latencies, thereby enabling informed decision-making and strategic planning.
- Developed automated processes to streamline data handling for cryptocurrency instruments, resulting in significant time savings and improved data management efficiency.
- Technical skills: **Python, SQL, SQLAlchemy, Git, Bash, Grafana, gRPC, ML.**

### Assistant Researcher

December 2021 – Present

Mathematics Institute of the Romanian Academy

Bucharest, Romania

- The Mathematics Institute of the Romanian Academy is the leading mathematical institution in Romania, ranking amongst the top 3 research institutions at the national level.
- Publications:
  - *The Selberg trace formula for spin Dirac operators on degenerating hyperbolic surfaces*, arxiv.org/abs/2212.11793, to appear in: **Documenta Mathematica** (ranks amongst top 15% Mathematical journals worldwide).
  - *Spectral convergence of the Dirac operator on typical hyperbolic surfaces of high genus* (with Laura Monk), arxiv.org/abs/2307.01074, to appear in: **Annales Henri Poincaré** (ranks amongst top 20% Mathematical Physics journals worldwide).
  - *Uniformization of Riemann surfaces revisited* (with Cipriana Anghel), arxiv.org/abs/2008.12189, **Annals of Global Analysis and Geometry** (ranks amongst top 40% Mathematical journals worldwide).
- Selected invited talks:
  - *The Selberg trace formula for spin Dirac operators on degenerating hyperbolic surfaces*, Geometry and Topology Oberseminar, University of Göttingen, 2023.
  - *The uniformization theorem*, Analysis Reading Group seminar, University of Bristol, 2023.
  - *The Selberg trace formula for spin Dirac operators*, Geometric seminar, University of Regensburg, 2022.
- Conferences and summer schools:
  - Random walks and related random topics, Göttingen, 2022.
  - Geometry and Analysis on Non-Compact Manifolds, CIRM, Marseille, 2022.
  - Heidelberg Laureate Forum, 2018 (I was selected amongst 200 young researchers to spend a week with the recipients of the Abel Prize, Turing Award, ACM Prize, and Fields Medal).

- Organized a semester seminar with over 14 meetings providing a self-contained introduction to **Brownian motion** and the **Black-Scholes equation**, with a focus on their applications to finance.
- Teaching assistant for the courses **Real Analysis** and **Riemann Surfaces** at University of Bucharest.

## EDUCATION

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<b>PhD, Mathematics</b>	November 2019 – June 2024
Mathematics Institute of the Romanian Academy	Bucharest, Romania
Thesis title: Spectral and algebraic methods in the study of differential manifolds.	
<b>Master Degree, Mathematics</b>	October 2017 – July 2019
University of Bucharest – Department of Mathematics and Computer Science	Bucharest, Romania
Graduated with grade 9.75/10 ranking amongst top 3% of all students.	
<b>Bachelor's Degree, Mathematics</b>	October 2014 – July 2017
University of Bucharest – Department of Mathematics and Computer Science	Bucharest, Romania
Graduated with grade 10/10.	

## PERSONAL PROJECTS

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<b>Developed an e-learning platform</b>	January 2020 – December 2021
Frontend code: <a href="https://github.com/rares1928/rezigo_v2">github.com/rares1928/rezigo_v2</a>	
<ul style="list-style-type: none"> <li>• Co-managed a team of five members, playing a key role in the successful launch of a website tailored for medical school graduates in Romania to prepare for their final exams, attracting approximately 1000 users annually. Played a major role in the development of the website and in the integration of the payment process, resulting in over 100 successful payments to-date.</li> <li>• Technical skills: <b>JavaScript, Git, React, SQL, CSS, C#, Stripe.</b></li> </ul>	

## HONORS AND AWARDS

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<b>Bitdefender Scholarship</b>	2020
Merit based scholarship awarded to two PhD students at the Mathematics Institute.	
<b>Anghelescu Scholarship</b>	2017
Recognition for up to 3 students at University of Bucharest – Department of Mathematics.	
<b>Bronze medal at IMC</b>	2016
International Mathematics Competition for University Students.	
<b>Silver medal at SEEMOUS</b>	2016
South Eastern European Mathematical Competition for University Students.	
<b>Gold medal at the Romanian Mathematical Olympiad</b>	2014
National level Mathematical Olympiad.	

## SKILLS AND LANGUAGES

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**Languages:** Romanian (Native), English (C1), German (B1), French (A1).  
**Programming:** Python, SQL, Javascript, C#, R, MATLAB, Mathematica.  
**Document Creation:** Microsoft Office Suite, LaTeX, Markdown.

## HOBBIES AND OTHER ACTIVITIES

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Organizing a book club ([www.rares-stan.ro/book-club](http://www.rares-stan.ro/book-club)), playing Chess, Hiking.