Teodor Ilie

Curriculum Vitae

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Education

Queen's University   *September 2024 — Present*

MASTER OF COMPUTER SCIENCE — AI SPECIALIZATION   *Kingston, ON, Canada*

- GPA: 4.3/4.3 — Relevant coursework: Reinforcement Learning (A+), Cybersecurity (A+), Computational Biology (A+)
- Researched AI solutions for autonomous vehicles, including Deep Reinforcement Learning for control, and AI methods for Computer Vision
- Awarded all three of the university's most competitive graduate scholarships: Vector Institute, NSERC CGS, and OGS

Queen's University   *September 2018 - August 2022*

BACHELORS OF COMPUTING (HONOURS) IN COMPUTER SCIENCE   *Kingston, ON, Canada*

- GPA: 4.0/4.3, Dean's Honour List every academic year
- Relevant coursework: Data Analytics (A+), Artificial Intelligence (A), Data Structures (A+), Algorithms (A+), Software Architecture (A+), Logic (A+), Discrete Math (A+), Linear Algebra (A+), Calculus (A+), Statistics (A+), Introduction to Computer Science (A+), Advanced Spanish (A)

Skills

Programming   Python | Java | C++ | HTML | CSS | JavaScript | SQL | Bash | VBA | Prolog
Technologies   ROS2 | Gazebo | Docker | OpenCV | SB3 | Gymnasium | Git | Spring | Angular | Jira | Final Cut Pro | Adobe Photoshop
Interests   Violin | Guitar | Visual art | Photography | Kickboxing | LEGO Technic Engineering
Languages   English | French | Spanish | Romanian

Projects

F1TENTH Autonomous Racing Team Lead 🔗   *July 2025 - Present*

AUTONOMOUS RACING, COMPUTER VISION, CONTROL SYSTEMS

- Founder and team lead of Queen's F1TENTH/RoboRacer autonomous racing team, leading a group of PhDs, post-docs, and MSc students in partnership with Ingenuity labs and IEEE engineering faculty advisors
- Developed autonomous racing algorithms for 1/10th scale cars using ROS2, implementing SLAM, path planning, and real-time control systems
- Implemented computer vision pipeline for track detection and obstacle avoidance using LiDAR and camera sensor fusion

Active SLAM with Deep Reinforcement Learning 🔗   *January 2025 - April 2025*

REINFORCEMENT LEARNING, COMPUTER VISION, DEEP LEARNING

- Built an Active SLAM system for autonomous navigation using ROS2, Gazebo, SLAM Toolbox, and PIC4RL on a Clearpath Jackal robot.
- Designed a novel reward function with logarithmic scaling, improving DRL training speed by over 50%.
- Implemented and benchmarked state-of-the-art RL algorithms (PPO, SAC), achieving faster convergence and superior exploration with SAC. Demo 🔗

Neural Network Digit Classification 🔗   *January 2021 - April 2021*

PYTHON, NEURAL NETWORKS

- Designed and implemented a Neural Network model in Python to correctly classify handwritten digits, using the MNIST dataset
- Gained an in-depth understanding of Neural Networks by programming the linear perceptrons and connections from scratch
- Experimented with loss functions, hidden layers, and activation functions, to achieve peak accuracy performance of 97% on the test dataset

Presidential Speech Efficacy Prediction 🔗   *September 2020 - December 2020*

MACHINE LEARNING MODELS (SVM, NEURAL NETWORK, RANDOM FOREST, kNN, BAYESION), EXCEL, KNIME

- Applied Data Analytics concepts like clustering and prediction to predict the efficacy of presidential candidate speeches with 94.6% accuracy
- Performed clustering using PCA, DBSCAN, and k-means, and visualized data in Excel; investigated accuracy using Bayesian, k-Nearest Neighbour, Neural Networks, Random Forests, and Support Vector Machines models in Jupyter Notebook and KNIME
- Determined key targets for writing compelling speeches, such as top 10 words, and investigated the role of deception in winning debates

Personal Portfolio Website – #1 Google Result for My Name 🔗   *September 2023 - Present*

ANGULAR, TYPESCRIPT, HTML, SCSS

- Developed a portfolio website in Angular that ranks #1 on Google for "Teo Ilie" through SEO optimizations, boosting recruiter outreach by 40%
- Achieved a 98% performance Lighthouse score through WebP/WebM media compression, dynamic image sizing, pre-loading, and CDN caching
- Integrated Material Design UI, dark/light themes, and custom scroll animations, increasing average visit duration by 35%
- Automated CI/CD pipeline through Cloudflare Pages, and enhanced security through DNSSEC, HTTPS redirects, and user input sanitization

Work Experience

BMO Financial Group   *September 2022 - Present*

Full-Stack Software Developer   *Toronto, ON, Canada*

- Developed SKOPE, an internal safekeeping app using RESTful Spring APIs in the Back-End, and Angular Front-End, in an Agile team
- Leveraged JUnit unit testing, Git, TDD, automated Postman testing, and Maven API deployments, to deliver high-quality software
- Performed advanced analysis and design tasks to optimize codebase, reducing unit test size by 50%
- Presented innovative AI cash flow forecasting solution to senior executives, using an ARIMA model, AWS, and Jupyter notebooks

BMO Financial Group   *May 2021 - August 2021*

Business Analyst   *Toronto, ON, Canada*

- Spearheaded the design of an automated reporting tool using Microsoft Power BI and Power Automate that improved efficiency by 1000%
- Networked online with leading teams across the bank, including the Technology Research & Innovation Team, to deliver the best product
- Conducted knowledge sharing workshops with my team and management to allow my tool to be used bank-wide after my term

BMO Financial Group   *May 2020 - August 2020*

Business Analyst   *Toronto, ON, Canada*

- Coordinated month-end systems monitoring bridges by connecting bank-wide teams; reported hourly health checks to Senior executives
- Led weekly change meetings, connecting Product and Business teams across the business, using ServiceNow, JIRA, and Microsoft Teams
- Increased daily reporting efficiency by 200% for my team through automation, using Excel and Microsoft Virtual Basics coding

Publications

[1] A. Coulter*, T. Ilie*, R. Tibando*, and C. Muise, "Theory alignment via a classical encoding of regular bisimulation," ICAPS: Workshop on Knowledge Engineering for Planning and Scheduling (KEPS), (*equal contribution), 2022, Accessed: Dec. 05, 2023. [Online]. `https://icaps22.icaps-conference.org/workshops/KEPS/KEPS-22_paper_7781.pdf`
Citations: 3 &

[2] A. Coulter*, T. Ilie*, R. Tibando*, and C. Muise, "Planning Tech for Planning Pedagogy," ICAPS: Workshop on Knowledge Engineering for Planning and Scheduling (KEPS), (*equal contribution), 2022, Accessed: Dec. 05, 2023. [Online]. Available: `https://icaps22.icaps-conference.org/demos/ICAPS_2022_paper_376.pdf`
Demo &

Awards

Ontario Graduate Scholarship   *2025-2026*

Queen's University, Province of Ontario   *Kingston, ON, Canada*

- $15,000 merit-based scholarship recognizing academic and research excellence in robotics and autonomous systems

Vector Scholarship for AI Research   *2024-2025*

Vector Institute   *Kingston, ON, Canada*

- $17,500 merit-based scholarship to support exceptional students in AI-related master's programs

NSERC Canada Graduate Scholarship   *2024-2025*

Queen's University, NSERC   *Kingston, ON, Canada*

- $27,000 scholarship to support high-calibre students with a high standard of achievement in undergraduate and early graduate studies

Dean's Honour List   *2018 - 2022*

Queen's University   *Kingston, ON, Canada*

- Awarded every year of my Bachelor's for a GPA greater than 3.5/4.3

BMO Student of the Term Award   *August 2020*

BMO Financial Group   *Toronto, ON, Canada*

- Awarded for one of top 3 nominees out of 240 interns, awarded by the Campus Recruitment Team for strongest contributions to the bank

NSERC Undergraduate Student Research Award   *July 2020*

Queen's University, NSERC   *Kingston, ON, Canada*

- Awarded $6,000 grant for excellence in undergraduate studies and research aptitude

Principal's Scholarship   *September 2018*

Queen's University   *Kingston, ON, Canada*

- Awarded $7,000 scholarship on the basis of academic excellence, to students who are in the top 5% of the competitive admission average

Dr. T.M. Porter Scholarship for Mathematics   *July 2015*

University of Toronto Schools   *Toronto, ON, Canada*

- Awarded for excellence in undergraduate studies and research aptitude

Canadian Computing Contest 1st Place Regional Winner   *February 2014*

UNIVERSITY OF WATERLOO   *Waterloo, ON, Canada*

- Awarded for a perfect score on this computer science competition

DECA Hospitality and Tourism Section Regional Qualifier   *February 2014*

DECA   *Toronto, ON, Canada*

- Qualified for the national competition
- Developed communication skills and the ability to deliver compelling speeches

Presentations

Canadian Robotics Council Symposium   *October 9, 2025*

INGENUITY LABS RACING TEAM DEMO   *Kingston, ON, Canada*

- Led the Ingenuity Labs Racing team demo at CRC 2025, demonstrating our F1TENTH autonomous racing platform and simulation environment, and securing sponsorships through strategic networking with industry and academic stakeholders
- Spearheaded the sponsorship initiative by coordinating team efforts to develop a comprehensive sponsorship package and identify high-value funding opportunities in order to expand the team budget

Volunteer Experience

Bit-by-bit Computer Science Camp Volunteer   *2014*

WESTERN UNIVERSITY   *London, ON, Canada*

- Taught programming through LEGO Mindstorms to children, from beginner to advanced sections

ProVita Orphanage Volunteer   *2019 - Present*

PROVITA   *Valea Plopului, Romania*

- Helped build new houses to expand accommodation
- Organized music workshops and sports activities for the children
- Acted and translated subtitles for promotional videos