TJ Ayoub
Applied Mathematics at Western University

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PROFESSIONAL EXPERIENCE

Western University Department of Applied Math   MAY 2021 - SEP 2021
Assistant Researcher
- Worked towards creating a numerical scheme that exploited the inherent symmetries in linear differential equations in order to solve them
- Extended the exploit to be applicable to nonlinear differential equation by means of a linear conversion using Lie algebras and an invertible change of variables

Western University Department of Applied Math   MAY 2020 - OCT 2020
Computer Algebra Intern
- Developed a pattern matching algorithm to be applied to novel Lambert W function simplifications in Maple
- Work has been implemented into the Maple 2021 build
- Published a paper detailing the algorithm and its implementation with Dr. David Jeffrey

London Regional Cancer Program   AUG 2019 - FEB 2020
Research Assistant
- Investigated prognosis of critical stage lung cancer patients before, during and after the 2019 etoposide shortage
- Flagged and compiled relevant patient data to be used for statistical analysis

ACADEMIC HISTORY

Western University   SEP 2017 - APR 2022
BSc. in Applied Mathematics
- Honours Specialization (Thesis) with a cGPA of 3.95/4.00 (OMSAS GPA scale conversion)

SKILLS & INTERESTS
- Programming in Java, R, Maple, MATLAB and Python
- Problem-solving—, critical reasoning—, leadership— and teamwork—skills
- Photography, videography, content creation, 3D printing & CAD, teaching/education and cars

AWARDS AND SCHOLARSHIPS

The Allan Heinicke Memorial Scholarship   NOV 2021
- Awarded in recognition of an outstanding academic record; via faculty nomination

USRI 2021   MAY 2021
- Awarded to top-achieving students at the discretion of each awarding faculty

Dean's Honour List   2017 - 2021
- Awarded to students achieving an average of at least 80% with no failed courses

USRI 2020   MAY 2020

The Western Scholarship of Excellence   SEP 2017
- Awarded to incoming students with an admission average between 90.0% and 94.9%

PUBLICATIONS & PRESENTATIONS

- Ayoub T.J., Basu K., Jeffrey D.J. "Bernoulli's Problem $x^y = y^x$ and Maple." Communications in Computer and Information Science, vol 1414. Springer, Cham. (2021) https://doi.org/10.1007/978-3-030-81698-8_5

- Eigenvalue Problems on Atypical Domains - The Finite Element Method, given on Dec 6 2021
  At Western University as a guest lecturer for AM9561 (numerical analysis at the graduate level)

EXTRACURRICULARS

Western Formula Racing   SEP 2021 - PRESENT
Aerodynamics Team Member
- Designed and manufactured various carbon fibre foam core composite parts
- Closely worked with the Aerodynamics Team Lead to delegate tasks and manage sub-groups

Science Students' Council   APR 2019 - APR 2021
Director of Videography
- Produced video-centred promotional material and episode-based series
- Co-led a team of 15 creators, generating content for over 25 events