

James Christopher Koch

M.Sc

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Research Experience

03/2025 - present	Research Associate Institute for Building Structures and Structural Design University of Stuttgart, Germany
05/2018 - 08/2018	Research Assistant - Structural Engineering University of Alberta; Edmonton, Canada <u>Undergraduate Student Research Award; National Science & Engineering Research Council</u> Project: Investigate Lateral-Torsional Buckling of Singly-symmetric Steel Girders The aim of this research was to investigate the lateral torsional buckling behaviour of singly-symmetric steel girders. It included both analytical and numerical computation of the bending moment capacity of over 16000 differently sized girders using Python.
09/2017 - 04/2018	Research Assistant - Structural Engineering University of Alberta; Edmonton, Canada <u>Dean's Research Award</u> Project: Evaluation of CSA S16-14 Asymmetry Parameter for Singly-symmetric Beams Done concurrently with a semester of my bachelor's studies. Consisted of evaluating the asymmetry parameter for singly-symmetric beams with respect to definitions according to the Canadian design standard and it's analytical definition.
01/2017 - 08/2017	Research Assistant - Transportation Engineering University of Alberta; Edmonton, Canada My responsibilities as a research assistant included both the development of algorithms that enable the use of LIDAR data for traffic safety analysis and the processing of this LIDAR data using efficient programming "cloud computing".

Professional Experience

08/2020 - 03/2025	Structural Engineer Fast+Epp GmbH; Darmstadt, Germany Key Responsibilities included: <ul style="list-style-type: none">- Development of structural concepts in the schematic design phase.- Dimensioning of structural timber, concrete and steel elements.- Design and detailing of structural timber, concrete and steel connection design.- Developing 2D/3D analytical FE models (shells, beam elements).- Consideration of holistic integral planning (fire protection, building physics).- Participation in the preparation of the tender specification (quantity takeoffs).- Coordination of the preparation of structural construction drawings.- Attendance as sole structural representative at routine project meetings.
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Education

09/2018 - 06/2020	Master of Structural Engineering & Building Technology Chalmers University of Technology; Göteborg, Sweden Graduated with distinction. Grade Point Average: 4.4/5.0 - Courses in timber, concrete, and steel structural design as well as finite element analysis. Thesis: <ul style="list-style-type: none">- Title: Probabilistic assessment of brittle failure modes of timber connections- Supervised by Dr. Robert Jockwer
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09/2013 - 04/2018	Bachelor of Civil & Environmental Engineering University of Alberta; Edmonton, AB, Canada Graduated with distinction. Grade Point Average: 3.6/4.0 - Involved as a member of the Steel Squad which is part of the Steel Centre . - Mentored by Patrick Geers during my structural engineering capstone project course.
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Skills

Structural design	timber detailing & design, foundations and retaining structures, steel detailing and design, concrete detailing & design
Research	lateral torsional buckling, timber connections
Computer science	machine learning, iterative algorithms, computer vision
Programming	Python, MATLAB, L ^A T _E X, R, Linux
Transportation design	accident analysis, sight distance analysis, asset management, LIDAR data analysis
Construction	surveying, collaborative project planning
Engineering software	MS Excel, Dlubal RFEM/RSTAB, mbAEC, SAFE, SAP2000, Abaqus, Plaxis, Comsol, Grasshopper3D, Rhino3D, AutoCAD, Revit

Languages

English	native or bilingual proficiency
German	native or bilingual proficiency (C1 Sprachdiplom)

Awards & Honors

05/2018	Undergraduate Student Research Award, National Science and Engineering Research Council; Edmonton, Canada
04/2018	Dean's Research Award, University of Alberta; Edmonton, Canada
09/2016, 09/2017	Jason Lang Scholarship, University of Alberta; Edmonton, Canada
05/2016	International Education Abroad Award, University of Alberta; Edmonton, Canada
09/2013	Academic Excellence Scholarship, University of Alberta; Edmonton, Canada
09/2013	Academic Excellence Award, University of Alberta; Edmonton, Canada
06/2013	National Scholar (Canada), Advanced Placement (AP); Edmonton, Canada

Volunteer Experience

09/2017 - 04/2018	Engineering Coop Student Mentor & Ambassador Lead University of Alberta; Edmonton, Canada My role was as a mentor within the Mentorship Initiative of the Engineering Co-op Student Ambassador Program at the University of Alberta.
11/2017 - 04/2018	Workshop Assistant The Carpentries; Edmonton, Canada My role was a helper in a workshop designed to teach effective software development skills and data management practices at a university research level. The workshop was primarily intended for graduate students.

Interests

	bikepacking, cross-country skiing, downhill skiing, trumpet playing, running, hiking
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