

Nicholas Betancourt, MSc, EIT

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Education

College of Engineering, University of Saskatchewan	Saskatoon, Saskatchewan
Master of Science in Mechanical Engineering - 93% Average	December 2021
<ul style="list-style-type: none">Graduate Coursework: Design and Fabrication of Tissue Scaffolds, Tissue Engineering, Biomaterials, Statistical Methods for Research, Advanced Engineering Design MethodologyAwarded Devolved Scholarship for academic excellence, research potential and contribution	
Graduate Professional Skills Certificate: Year-long Program for Developing Soft Skills	June 2020
Bachelor of Science in Mechanical Engineering - with Distinction	June 2017

Work Experience

College of Engineering, University of Saskatchewan	Saskatoon, Saskatchewan
Graduate Student, Biofabrication Group	September 2018 – December 2021
Conceptual Design and Evaluation of a Novel Multi-material Bioprinting System	
<ul style="list-style-type: none">Published a review on current extrusion-based multi-material processes in the journal BioprintingExecuted a methodical design process under multiple physical domains, such as mechanical, fluidic and biomaterials, for a SolidWorks drawn system demonstrating spatial control of numerous bio-inksCreated a comparison method based on Axiomatic Design principles and showed that the proposed design is the single best in material control and reconfigurability against existing bioprinting systems	

Teaching Assistant, Department of Mechanical Engineering	January 2019 – April 2021
<ul style="list-style-type: none">Taught groups of 50 students how to simulate kinematics and kinetics of plane motion in MATLABRevamped grading guides for assignments/exams covering analysis and design of control systems	

Undergraduate Research Assistant, Biofabrication Group	May 2016 – August 2017
Characterization of Cell Damage and Proliferative Ability during and after Bioprinting	
<ul style="list-style-type: none">Oversaw mammalian cell-line cultures and formed alginate-based bio-inks for wet lab experimentsEstablished a model correlating the influences of extensional- and shear-stresses on cell performance based on flow profile simulations and validated by experimental data at various dispensing scenariosPresented findings at an international conference and co-authored a publication in ACS Biomaterials	

President, Mechanical Engineering Students Association	September 2016 – April 2017
<ul style="list-style-type: none">Voted by peers to represent students' needs and guide decisions at the college's Board of DirectorsLed a team of 20 elected students to organize community events, tutorials, and a graduation banquet	

Ron and Jane Graham School of Professional Development	Saskatoon, Saskatchewan
Curriculum Developer & Subject Matter Specialist	May 2020 – December 2021
<ul style="list-style-type: none">Earned COVID-19 Remote Teaching Award for delivering several high-quality quizzes and lessonsAnalyzed quiz- and question-level scores from 900 students in SPSS to inform curriculum changesFacilitated training for ten instructors and created a manual for delivering remote teaching material	

Skills, Certifications, Training & Activities

Skills: SolidWorks, Fluent, MATLAB, Slic3r, SPSS, 3D Printing, Cell Culture, Leadership, Teaching
Certifications & Training: TCPS 2: CORE, Biosafety, APEGS Engineer-in-Training, LabView CORE
Activities: Mentorship Program for First-year Students, Performer for Local Theater, Local Track Club