Zachary R. Nichols

13806 Meadow Lake Drive, Fishers, IN 46038 | 317.460.6917 | znichols1131@gmail.com

Career Objective

I am pursuing a hands-on role in the software development and configuration industry. In this role, I would expect to utilize my systems-focused problem-solving from my mechanical engineering background to deliver unique solutions to identified markets and users. I am seeking a mentor to guide me in pivoting careers, and I ultimately hope to become a mentor myself.

Who I Am

I am driven, reliable, and determined to finish what I start. My lifelong love of learning has cultivated opportunities and experiences that have rewarded collaborative efforts and dedication to quality.

My Professional Strengths and Skills

- Actively learning JavaScript/TypeScript, HTML, CSS.
- Knowledgeable in Python 3, Java, Objective C, Xcode iOS development, Robot C, and MATLAB.
- Proficient in Trace 700 energy modeling, ROHR 2 pipe stress analysis, AutoCAD, and Revit.
- Experienced technical writer with commissioning and validation skill set.

Education and Training

Master of Science in Engineering Management
Purdue University, West Lafayette, IN (2018): GPA = 3.93

Bachelor of Science in Civil Engineering (with Highest Distinction)
Purdue University, West Lafayette, IN (2017): GPA = 3.96

Career History

Mechanical Engineer
Mussett Nicholas & Associates, Indianapolis, IN
May 2018 – Present

- Headed the steam distribution design for Caterpillar's Lafayette, IN campus from design development through turnkey operation. Responsibilities included pipe stress analysis, detailed pipe support designs, and on-site construction administration to ensure quality.
- Collaborated with a multi-firm design team to deliver an expedited pharmaceutical formulation suite as part of Operation Warp Speed. Responsibilities included process pipe design, utilities coordination, controls sequencing, and validation document generation.
- Secured repeat business through practical consultation and customer service for clients such as Eli Lilly, Catalent Biologics, Caterpillar, Cummins, Allison Transmission, Indiana University, Louis Dreyfus Company, and the U.S. government.
- Contributed to numerous design efforts involving HVAC, steam, hydronic, sanitary, and compressed air systems. Projects included new construction, critical equipment replacement, utility capacity studies, and corporate renovations.

Mechanical Engineering Graduate Intern
Mussett Nicholas & Associates, Indianapolis, IN
May 2017 – August 2017

- Coordinated and provided engineering validation for commercial water and sanitary systems in healthcare applications.
- Conducted a Cummins case study to reroute outdoor air intake ductwork and provide filter banks for existing air compressor equipment.
- Retroactively analyzed natural gas consumption in a Cummins facility to estimate changes in building behavior.

Mechanical Engineering Intern
Affiliated Engineers, Inc., Madison, WI
May 2016 – August 2016

- Designed and coordinated the ductwork, piping, and utilities to minimize pressure loss and noise generation for a ten-floor chemistry building for the University of Wisconsin-Madison.
- Created and maintained a Trace building model and corresponding ventilation tabulations.
- Selected air handling units, air terminal units, reheat coils, and other mechanical equipment.

Mechanical Engineering Graduate Intern
Mussett Nicholas & Associates, Indianapolis, IN
May 2015 – August 2015

- Performed thermal load calculations, equipment selection, and cost estimates for Cummins' Southern Indiana Logistics Center (SILC).
- Designed, sized, and performed pressure drop calculations for ductwork and hydronic piping.
- Assisted in LEED baseline comparisons and equipment scheduling for Camp Atterbury National Guard base retrofit.
- Prepared installation verification checklists, functional performance tests, and examined submittal reviews.

Transportation Engineering Intern
Michael Baker Jr., Inc., Indianapolis, IN
May 2014 – January 2015

- Developed VBA programs to calculate horizontal and vertical curve data, including stopping sight distance and formatted printouts.
- Delineated GIS watersheds and assisted in an on-site environmental analysis of traffic and noise on I-65 near Louisville, KY.

Relevant Experiences

- Utilized AutoCAD AutoLISP to automate repetitive CAD drafting to reduce drafting errors and expenses while at Mussett Nicholas & Associates.
- Redesigned the Chi Epsilon Purdue Chapter's website using HTML, CSS, and Bootstrap without any prior web development experience: https://engineering.purdue.edu/~xe/Home.html.
- Headed programming efforts for two robots as part of the Purdue Honors College ENGR 14100 curriculum. Skills developed include Robot C, Lego NXT, PID control loops, and sensor filtration.
- Automated curve and traffic safety calculations in Excel and utilized VBA to programmatically manipulate printout formatting while at Michael Baker Jr., Inc.
- Developed an iOS application to assist in weight-lifting prediction and tracking for Noblesville High School. Skills developed include Objective-C, Xcode, and Apple Store deployment.