MARC MAILLOUX

Modeling and Simulation Systems Engineer

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OBJECTIVE

"To apply my knowledge of machine learning, data mining, and modeling-simulation techniques to advance technology on a cross-disciplinary basis and ultimately build the framework for future doctorate studies."

EDUCATION

UNIVERSITY OF CENTRAL FLORIDA

Masters of Science Modeling and Simulation — May 2019
- Focus: Intelligent Systems and Data Science
- Current GPA: 3.65

Bachelor of Science Mechanical Engineering — May 2017
- Senior Project: Micro UAV Design Competition
- UCF Dean's List Spring '16 & '17, Fall '16

SKILLS

- **Python**
- **R**
- **M&S Techniques**
  Continuous, Discrete, Agent-Based
- **AnyLogic**
- **Fusion 360**
- **Solidworks**
- **3-Axis CNC Machining**
- **3D Printing**

EXPERIENCE

Perspectives on Modeling and Simulation — Aug 2018-May 2019
Graduate Teaching Assistant
- Distribute, facilitate, and grade online discussion assignments
- Provide mentorship opportunities for students through open office hours, availability during class hours, and virtual support, totaling 20 hours per week

Team Solutions Dental Lab — April 2018-Aug 2018
3D Printing Intern
- Maintained and operated the Form2, Kulzer Cara, and Stratasys Objet 3D printers
- Operated Sum 3D CAM Software to mill zirconia crowns using a Roland 50 and 51 six-axis CNC

Artistic Entertainment Services — July-Oct 2017
Project Designer
- Designed stage show sets for entertainment leaders like Disney and Universal Studios
- Utilized Solidworks 2017 to design 35+ details drawings for in-house fabrication
- Collaborated with clients and the internal team on a daily basis to deliver intended design

University of Central Florida (UCF) Marine Sea Turtle Research Group — Apr 2015-Aug 2016
Engineering Intern
- Built a submersible class remote operated vehicle, the OPENROV 2.8, for field research
- Researched the use of harmonic radar to find sea turtle egg chambers

CLASS PROJECTS

Simulation Techniques
- Used Python to generate data of a Monte Carlo simulation of Chutes and Ladders board game, applied CDF, and created the visual representation.
- Used Python Mesa and Pillow Libraries to simulate a forest fire with real-world photos. Applied burn lines to simulate spread prevention.

Machine Learning
- Built the K Nearest Neighbor Algorithm to analyze Mnist Dataset. Applied k-fold cross validation and developed a sliding window algorithm to optimize the solution.
- Used SVM algorithm to analyze the UCI glass dataset and find the optimal hyperparameters. Implemented a one-vs-one and a one-vs-all approach.

Data Mining Methodology
- Analyzed video game sales with 16,500 observations and 11 potential predictors. Developed a model to test on 2016 & 2017 sales data using statistical learning.

Data Visualization
- Re-visualized published research data using R to better communicate the research results.
- Analyzed a dataset of real estate rental property information to produce graphs that illustrate net worth, monthly rental income, monthly loan payments, total loan amount.