

## Titles of MTHE 493 Projects for Fall Term 2021 / Winter Term 2022

(Supervisors in parentheses)

### *Region Tracking Through Image Sequences*

Madison Boem, Sakhia Kwemo, Martin Leung, Christian Salvati, Nikki Tittel, (A. Mansouri)

### *Optimization of Data Allocation with Training Time Constraints in Heterogeneous Edge Learning*

Bryan Hoang, Jack Malloch, Jared McGrath, Edan Parker, Michael Treagus, (A. Mansouri)

### *Generalized Fisher's Linear Discriminant: Class-Aware Dimensionality Reduction Applied to Facial Recognition*

Awni Altabaa, Leigh Dederer, Emily Edwards, Nick Murray, Zoe Rolfe-Low, Andrew Sergejewich, Eric Yuyitung, (A. Mansouri)

### *Investigating Non-Linear Restrictions for Facial Recognition Algorithms with Masked Faces*

Edward Qi, Alex O'Neill, James Dancer, Braedon Hewitt, Harkiran Kaur, Andrew Gray, (A. Mansouri)

### *Structural Design and Implementation of Mobile Aquatic Cage off British Columbia Coast*

Jack Spencer, Caleb Warren, Sydney Corbett, Andrew O'Reilly, Mac MacIntosh (M. Mohebbi)

### *Control of a Mobile Aquaculture Cage in Pegametan Bay, Indonesia*

Hannah Lacey, Tristan Lawson, Nicolas Lepine, Aaron Sant, Adrian Wong, (M. Mohebbi)

### *Design of Mirror Arrays for Concentrator Photovoltaic Units*

Max Bennett, Andrew Kates, Ethan Bonnardeaux, Fawaz Ahmed Mohideen, Naveta Padda, (M. Mohebbi)

### *Payload Vibration Dampening on the Cygnus Spacecraft*

Christina Bisol, Kathryn Instrum, Drew Samis, Isabelle Thierrin (G. Mazzone)

### *Design of a Tuned Liquid Damper for Earthquake Vibration Damping in Buildings within Indonesia*

Aliyah Haffejee, Anisha Basra, Ben Newman, Kaitlin Pritchard (G. Mazzone)

### *Drag Reductions on Buildings Using a Morphing Surface*

Armando Casanova, Sarah Couillard, Samuel Pieczonka, Nicolas Wills (G. Mazzone)

### *Optimising the Airflow Over the Rear Wing of a Formula SAE Vehicle Using Adjoint Shape Optimisation*

Mathew Jennings, Luca Sardellitti, Samuel Schaffel, Siena Thalassinis, (G. Mazzone)

### *Inventory Management for Stochastic Demand Processes: A Comparison Between Model-Free and Model-Based Learning*

Robert Castagna, Maxym Dubczak, Anders Farr, Ali Maoumnia, Adam Schneider, Felix Shier, Erte Wang, (S. Yuksel)

### *Optimization of Meal Delivery Using Centralized Reinforcement Learning Algorithms*

Jeffery Awobodu, Yale Freedman, Katya Papais, Anthony Reyes, Darko Stanisic, Luca Trombetta, James Zhu, (S. Yuksel)

### *Optimization & Design of Traffic Control: Optimization & Design of Networked Control Systems and Interaction Between Information and Control*

Amesh Kahloon, Angie Xu, Jacob Cohen, Maxime Vincent, Liam Cregg, Sean Sutherland, (S. Yuksel)

### *Modelling and Analysis of Dendritic Tree Function in Cortical Pyramidal Neurons*

Amean Asad, Kai Ferrall, Caroline Kim, Paul Majewski, Eric Venditti, Jade Watson, Julia Wiercigroch (G. Blohm & Y. Song)