Benjamin Ulmer, M.Sc.

contact@benjaminulmer.ca | benjaminulmer.ca

EDUCATION

M.Sc. in Computer Science – University of Calgary
September 2017–June 2020

- Thesis on data structures for 3D geospatial data
- Conducted original research which required developing custom software tools
- Presented research progress semesterly in team meetings
- Prepared and delivered lectures on advanced topics
- 4.0 GPA

B.Sc. in Computer Science – University of Calgary
September 2013–June 2017

- Concentration in Computer Graphics
- 3.89 GPA

EXPERIENCE

Teaching Assistant – University of Calgary
January 2018–April 2020

- Taught Java and Python programming, geometric modelling, and games programming

Gymnastics Coach – Calgary Gymnastics Centre
January 2013–May 2017

- Taught gymnastics to children aged two to sixteen in classes, summer camps, and birthday parties

PROJECTS

Covid-Visualization – blulmer.ca/covidualization/

- Group research project on visualizing COVID-19 data
- Contributed to Digital Earth engine code
- Developed minimal windowing framework to support rendering of movable and sizable charts

Another One Bites the Crust – blulmer.ca/aobtc/

- Semester long project programming a driving video game as part of a four-person team
- Primary responsibilities were physics, the driving model, player input, and split-screen implementation

Streamline Wind Visualization – blulmer.ca/3dwind/

- Tool for visualizing 3D global wind data via streamlines
- Implemented adaptive step integrator and multiresolution streamline seeding algorithm
- Designed illustrative rendering techniques and interactions to highlight key aspects of the data

TECHNICAL SKILLS

C++ • OpenGL • Python • Java
PhysX • CHAI3D • Eigen • SQL
Visual Studio • Git • Bash
Latex • Inkscape

MATH BACKGROUND

Calculus • Spherical Geometry
Linear Algebra • Map Projections
Geometric Modelling • Rendering
Basic of Machine Learning

PUBLICATIONS

Ulmer, B., & Samavati, F. (2020). ***Toward volume preserving spheroid degenerated-octree grid***. GeoInformatica, 24, 505-529.

Ulmer, B., Hall, J., & Samavati, F. (2020). ***General Method for Extending Discrete Global Grid Systems to Three Dimensions***. ISPRS International Journal of Geo-Information, 9(4), 233.

Hall, J., Wecker, L., **Ulmer, B.**, & Samavati, F. (2020). ***Disdyakis Triacontahedron DGGS***. ISPRS International Journal of Geo-Information, 9(5), 315.

SCHOLARSHIPS & AWARDS

NSERC Canadian Graduate Master's Scholarship

Queen Elizabeth II Graduate Scholarship

Fred A. McKinnon Award for Graduate Teaching Assistant

Department of Computer Science TA Excellence Award

HOBBIES & INTERESTS

Video Games • Baking • D&D
Motorcycles • Board Games