

Nick Waggoner

Colorado Springs, CO

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1. EDUCATION

Bachelor of Innovation in Computer Science 3.80/4.0 GPA

May 2022

University of Colorado Colorado Springs

Collateral: Creative Communication

Home of the only Bachelor of Innovation TM degree in the country which integrates computer science technical skills with the context of innovation.

2. PERSONAL STATEMENT

The first time I donned a virtual reality (VR) headset: an old, clunky, first-generation HTC Vive, I was awestruck and terrified to stand atop a building in a simulated reality and watch the ant-sized cars whiz along the street, hundreds of feet below me. I reeled when I had stumbled a little too far forward in my living room, telling the simulation that I was no longer atop the building, but free-falling through the air. The sensory experience was almost euphoric. How had my brain been so easily fooled to believe that I was in danger? I felt my body tense as the simulated cars drew closer to me.

In computer science, I see an impactful and purposeful vocation, yet what I love most is its fusion of scientific problem solving with artistic creative expression. My academic experience at the University of Colorado Colorado Springs was one of the most turbulent yet fulfilling experiences of my life. Although mentally and physically demanding, I have chosen to continue pursuing my Bachelor of Innovation degree in Computer Science because I believe it will equip me with tools to positively impact the world. Here, I was often inspired by my Honors Program Advisor, a PhD and Professor in Computer Science, with our discussions of complex systems and bifurcative emergence which can occur within autonomous agents. This led me to choose that I will pursue my Master of Computer Science in Games and Media Integration from UCCS (University of Colorado Colorado Springs) with a special focus in VR and Human-Computer Interaction systems.

Throughout my studies, I have learned to understand and master concepts quickly, communicating complex subjects at an elevated level to my multidisciplinary team members and peers. I chose to develop these skills by providing technical writing mentoring as a teaching assistant to other students. I feel that the skills for communicating complex concepts in a digestible manner have been crucial when collaborating with industry entrepreneurs to transform ideas from a premonition to a possibility then to a physical product through our Innovation Teams courses.

In Eidos Montreal's *Deus Ex: Human Revolution*, the exploration of human augmentation to improve the human condition and to preserve Adam Jensen's life after a tragic accident inspired me to publish a video essay on the ethics of integrating robotics into medical prostheses.

Outside my academic life, music and weightlifting help me relax and I have been able to balance these with weekly mentorship meetings where we discuss science fiction and current technology over coffee, allowing me to develop a mature viewpoint on the trajectory of robotic and VR development.

Through my experience I have realized that computer science can be challenging and time-consuming. Nevertheless, I know I have the motivation and ability to succeed in this rewarding and intellectually stimulating vocation.

3. TECHNICAL SKILLS

Concepts

Agile and Scrum iterative development
Object-Oriented Programming (OOP)
Data Visualization, Data Structures
Web Services
Test-Driven Design (TDD)

Behavior-Driven Design (BDD)
Software Architecture
Database Systems
REST
Software as a Service

Programming Languages

Python (programming language)
C++
Java
UNIX/Linux

C (programming language)
Ruby on Rails
HTML
CSS

JavaScript
Go (code)

Tools

React.js/NEXT.js
Docker
GitHub/GitLab/Git
Visual Studio
Heroku
CircleCI continuous integration
Capybara
Virtual Machines (VM)

Secure shell (SSH)
SimpleCov coverage reports
Bootstrap
Devise
CoppeliaSim V-Rep Robotics Simulation
Mapbox Geographic Information System
Adobe Dreamweaver CC and Adobe Suite

Professional Skills

Project Management
Project Planning
Intellectual Property Law
Patent Drafting

Grant Proposal Drafting
Technical Writing
Public Speaking

4. RELEVANT COURSEWORK

INNOVATION CORE

COMM 3440 Organizational Leadership

ENTP 4500 Entrepreneurship and Strategy

- Rehearsed professional communication and worked with several entrepreneurial mentors to develop my professional portfolio, consolidating deliverables from project-based learning at UCCS. Includes work with reports, non-profit sector, leadership, and Intellectual Property.
- See <https://nswagg.com> >> About for portfolio

INOV 4010 INOV Team: Design and Leadership

- The Global Gravity Association as Client Company
- Aaron Breetwor as Company Representative
- Scope of Work involved market research to explore key audiences for advertisement and engagement purposes for the extreme downhill sports industry. The client organization underwent an “executive pivot” and the scope of work was deemed completed under the guidance of faculty instructors at UCCS.
- I co-led a team of seven with Sawyer Bain through consistent communication and collaboration to produce a high-quality report of compiled research for our client.

INOV 3010 INOV Team: Research and Execute

- Boreas Dry Ice Blasting as Client Company
- Cole Chapman as Company Representative
- Scope of Work involved performing market research to explore the possibility of creating a high-profile car-detailing business using dry ice blasting. The main goal was to figure out how to reduce the carbon footprint from burning 750+ lbs. of dry ice daily. The team pursued research in a specialized greenhouse to capture carbon emissions as well as the target market and potential partners.
- Deliverables included consolidated research, an informational pitch deck, and branding assets including a new logo.

INOV 2010 INOV Team: Analyze and Report

- The Golden Lotus Foundation as Client Company
- Cynthia Chung Aki as Company Representative
- Scope of Work involved collaborating with local chefs to record and create a collection of videos detailing Asian cuisine to bring awareness to Asian culinary and linguistic culture.
- Team revived the client’s Facebook and created three video montages of the Asian cuisine prepared by local chefs to be highlighted on their website and social media.

INOV 2100 Technical Writing, Proposals, and Presentations

- Grand Valley Equine Assisted Learning Center (GVEALC) 501(c)(3) as Client Company
- Jay D. and Suzanne Muller as Company Representatives
- Researched funding opportunities for GVEALC and compiled the information into a final grant proposal package which was presented to GVEALC along with a follow-up guide to submit the application. This was outside the scope of work for the course.
- Grant Proposal requested \$10,000 for a sustainable capital construction project.
- In the Summer of 2021. I was invited to be a teaching assistant for the course and worked one on one with the class to develop their grant proposals.

BLAW 2010 Business and Intellectual Property Law

Worked with an advisor from the U.S. Patent and Trademark Office to come up with a unique product and draft a utility patent for that product.

INOV 1010 The Innovation Process

Using an Arduino unit, created and presented a mid-level functional prototype for measuring the lateral and medial arches of the human foot in order to 3D print a custom shoe insert to maximize foot support based on the foot's shape.

COMPUTER SCIENCE

CS 4720 Design and Analysis of Algorithms

CS 4500 Operating Systems I

Familiarization with Linux Kernel and using a virtual machine to develop components of an operating system using C Programming and secure shell (SSH)

CS 4460 Intelligent Robotics

- IEEE and AAAI format-heavy research and implementation.
- Using simulated robotics environment (CoppeliaSim vRep), developed an intelligent system for optimized navigation through a space (Dijkstra's path-finding algorithm), object identification and target object retrieval, and implemented swarming techniques to sort our objects.

CS 4420 Database Systems I

- Using a Geographic Information System (GIS) tool called Mapbox, created a global landslide data visualization with over 11,000 data points collected from NASA from 1988-2017. This map is interactive and launched to a web application on Heroku
- <https://nswagg-website-embed.herokuapp.com/>
- Also on personal website <http://nswagg.com/html/projects.html> Home >> Demo

CS 4220 Computer Networks

Data flow over networks connections and error control for mitigating and correcting lost/corrupted data.

CS 4200 Computer Architecture I

CS 3300 Intro to Software Engineering

- Entailed learning and integration of several new technologies in a short period of time to create a Ruby on Rails web application.
- Tools used include Docker, GitHub iterative design and project planning, CircleCi, Capybara, Heroku, SimpleCov, Devise, and Bootstrap.
- Limited documentation of the Ruby on Rails framework presented challenges with my test-driven development.

CS 3080 Python Programming

CS 3060 Object Oriented Programming in C++

Fundamentals of Object-Oriented programming and exercising the C++ standard library to develop a software system based around data objects.

CS 3050 Social and Ethical Implications of Computing

Explored global cultures and moral standards and how they relate to computer innovation.

CS 2300 Computational Linear Algebra

Developed applications for dealing with objects in a three-dimensional space including 3D arrays and shapes. Began introduction to physics-based kinematics and applications in computer science.

5. PEER-REVIEWED ARTICLES

L. Mortensen, P. Olender, and N. Waggoner, "Intelligent Systems for Optimized Navigation, Object Identification, and Swarming Techniques," Colorado Springs, 2022.

N. Waggoner, "A Thousand Ways: Outrunning Digital Realism," UCCS Kraemer Family Library, Colorado Springs, 2021.

6. PRESENTATIONS

- N. Waggoner, *Crossing the Divide: Bridging Reality and the Digital World*, COMM 2250 Professional Communication in the Workplace, Colorado Springs, 2019.
- N. Waggoner, *The ONE Thing: The Surprisingly Simple Truth Behind Extraordinary Results*, Honors Program Lecture, Colorado Springs, 2021.
- N. Waggoner, *Real-World Cyborgs: Human Augmentation*, YouTube Video Essay, Colorado Springs, 2021.
- N. Waggoner, *A Thousand Ways: Outrunning Digital Realism Honors Presentation*, Honors Program Lecture, Colorado Springs, 2021.
- N. Waggoner, *Portfolio Web Application Demo*, CS 3300 Software Engineering, Colorado Springs, 2021.

7. WORK EXPERIENCE

Radiometrics (RDX), Boulder, CO **May 2022-Oct 2022**

Junior Software Engineer – Remote from CO Springs

- Full-stack engineering for Microwave Radiometer Product and User interface (Vizmet-Pro)
- Development with React.js, Go (code), and Gitlab

Chick-fil-A, Colorado Springs, CO **Sept. 2020-Present**

Delivery Team Leader

- Delegating orders to delivery drivers for on-time and exemplary service
- Fielding and resolving customer complaints through effective communication

INOV 2100 Technical Writing, Proposals and Presentations Teaching Assistant, University of Colorado Colorado Springs **Summer 2021**

Documented one on one meetings with students to guide them in their Technical Writing.

Resident Assistant, University of Colorado Colorado Springs **August 2020-August 2021**

Collaborated with a second resident assistant to oversee 80 students and maintain housing community safety.

Computer Science Technical Support and Peer Mentor **Spring 2020-Spring 2022**

Guided other students through programming and application issues (GitHub, Eclipse, VS Code, etc.)

8. HONORS AND AWARDS

- Distinguished Graduating Engineer award **May 2022**
- President's List (3.5+ GPA in EAS) 7/8 semesters **August 2019-May 2022**
- Saccomanno Scholarship Award Recipient **August 2020 and August 2021**
- Honors Program Admission and Scholarship **August 2019**
- Chancellor's Award Recipient **May 2019**

9. CERTIFICATIONS

MITRE Engenuity eCTF Attack Phase Completion **April 2023**

CU: Discrimination and Sexual Misconduct – UCCS (course) **January 2022**

CU: COVID-19 Return to Campus-UCCS (health and safety course) **August 2020**

CU: Information Security and Privacy Awareness (course) **September 2019**

CU: Fiscal Code of Ethics (course) **September 2019**

10. REFERENCES

Terry Boulton, PhD, El Pomar Endowed Professor of Innovation and Security, Director for Bachelor of Innovation
University of Colorado Colorado Springs

Colleen Stiles, PhD, Senior Instructor and Co-Director for Bachelor of Innovation
University of Colorado Colorado Springs

Deborah M. Harding, Instructor of Computer Science
University of Colorado Colorado Springs

Rory A. Lewis, JD, PhD, Assoc. Professor of Computer Science and Bachelor of Innovation
Program Director for Masters of Computer Science
University of Colorado Colorado Springs

Ben Kostreva, Software Engineer
Direct Supervisor at Radiometrics

Zach Kellner, Personal Mentor