

# Tobias Kroll

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## Education

### **BS in Computer Science**

August 2015 – May 2019

University of Texas at Dallas

- Academic Excellence Scholarship
- Computing Scholars Honors Program

### **MS in Computer Science**

August 2020 – May 2022

University of Texas at Arlington

- GPA – 3.67
- Concentrations in Artificial Intelligence and Computer Architecture

## Advanced Coursework

- Network and Application Security
- Advanced Data Structures and Algorithms
- Database Systems
- Artificial Intelligence Design
- Software Engineering
- Machine Learning
- Embedded Systems
- Computer-Aided Verification for Systems

## Technology Skills

- Programming Languages: C, C++, Java, Python, Bash
- Web Technologies: HTML, CSS; AWS, Azure
- Database Systems: SQL, MySQL, noSQL
- Operating Systems: Mac OS, Linux, Windows

## Work Experience

### **Freelance Harpist – self-employed**

2010 - present

- Performed for weddings, company events, and coffee shop settings, individually and in ensemble
- Sought clients and opportunities to perform
- Elicited requirements and conditions from clients and negotiating appropriate pricings
- Devised practice regimen and event scheduling according to the client's requests

### **Graduate Teaching Assistant – University of Texas at Arlington**

August 2020 – present

- Chemistry for Engineers Laboratory
- Part of the initial move to online and hybrid instruction during response to COVID; part of the cohort to navigate and refine the department's protocols and resources in regards to the new instructional mode

## Technical Projects

### **“Tornado” Particle System**

- Physics-based particle system with 50000 particles mimicking a Tornado
- Explores algorithm implementations for various gradient decent and similar derivative approximation techniques
- Technologies used: C++, OpenGL

### **Derivation of Empirical Potentials using Bayesian Optimization - <https://github.com/TKrolljr/BayesOpt>**

- Software Suite optimizing Empirical Potentials used in Molecular Dynamics Simulations
- Solves efficiently in high dimensionality; several ePotential formats supported
- Technologies used: Python, skopt, LAMMPS

### **iGetHappy LLC Pictorial Emotion Recognition Senior Design Project**

- Worked on a team to deliver software that recognizes the emotion displayed in an arbitrary photo of a face
- Collaborated to research, design, and implement solutions regarding the goal – final implementation used Viola Jones Facial Detection, convoluted neural networks, and a Flask WebAPI
- Lead presentation and demonstration of the product to peers, professors, and industry sponsors
- Technologies Used: AWS, Python – Flask, Tensorflow

## Language skills

- Fluency in English and German; working proficiency in Spanish
- Dual citizenship US, Germany