

## Launched Products and Projects

[details in portfolio ^](#)

### ABET-Tracker:

- What is it: Cloud service web-app for universities that collects student performance information, calculates professor performance metrics over time, and creates documentation for accrediting agencies such as ABET.
- I solely conceived, developed, and launched the product in 4 months, following SDLC guidelines. It features over 10,000 lines of Django backend code, a custom, lightweight JavaScript framework, a PostgreSQL database, and is hosted using AWS EC2, RDS, and S3 instances.
- Used by the University of Southern Mississippi to completely automate their ABET reporting process and track the performance of and compare professors in the School of Computing Sciences.
- I implemented a custom AWS lambda function that automatically starts and stops the cloud infrastructure when needed: this decreased the price of the system from \$540 annually to \$45 on average.

### Expression:

- What is it: State-of-the-art machine learning model I created that uses a proprietary infrastructure to regress 70 facial landmarks and continuously refine its initial predictions, increasing accuracy by an average of 11%.
- Currently achieves an NME of 3.4 on a synthetic test set equivalent to the *Common 300W* dataset.
- Currently training on a custom synthetic dataset that features over 2,000 facial landmark notations per sample with landmark depth and expression labels, a first in the industry.
- I implemented a custom gaussian log likelihood loss function that trains the model in an unsupervised fashion to output its uncertainty for each of its landmark predictions.

### Unreal AI & Animation Extender:

- What is it: C++ Unreal Engine module that extends the AI and animation capabilities of the engine.
- Features an environmental query system that allows multiple AI agents to coordinate positional changes based on player visibility; creates complex, group-based, emergent behavior.
- Allows AI agents to dynamically alter their animations at runtime; this decreases the animation workload by 8x by removing the need for blend spaces.

## Programming Experience

- 7+ years: C++, Unreal Engine, HTML, CSS, Git
- 2+ years: Python, JavaScript, C#, C, Django, Flutter, SQL, EC2, S3, RDS
- 1+ years: TensorFlow, PyTorch

## Relevant Work Experience

### Founder & Machine Learning Engineer

*Beeson LLC*

2022 - Present

- Led a team of 8 software engineers for researching and implementing computer vision capabilities in autonomous agricultural drones.
- Launched 4 quarterly updates to ABET-Tracker, increasing the security and capabilities of the system.
- Setup and maintained ABET-Tracker servers for the University of Southern Mississippi for a year.

### Software Engineer Intern

*University of Southern Mississippi*

2021 - 2022

- Designed a database schema and software solution for collecting and processing the college's ABET data: scaled the solution into ABET-Tracker.
- Fully documented the entire development, met deadlines, and delivered more than originally promised.

## Education

Computer Science B.S.

4.0 GPA

University of Southern Mississippi, 2023