

# Rayane Tayache

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## EDUCATION

### University of Strasbourg

Strasbourg, FR

*Bachelor of Science, Computer Science & Mathematics | GPA: 13.5/20 | Top 10%*

*Expected Fall 2024*

- Related Coursework: Data Structure and Algorithm, Oriented Object Programming, Web Applications, Computer Architecture, Development techniques, Discrete Mathematics, Advanced Calculus, Linear Algebra and Economics.
- Activities: HackThe6ix, //Slash Hack, HackaTUM, GitHub Field Day London and Unistr'Hack.

### Indian Institute of Technology, Bombay

Mumbai, IN

*Bachelor of Technology, Computer Science and Engineering & Mathematics*

*July 2023 - May 2024*

- Exchange semesters with the following subjects: Machine Learning, Operating Systems, Compilers, Database and Information Systems, Computer Networks, Probability, Statistics, Numerical Analysis and Real Analysis.

## EXPERIENCE

### ML Researcher Intern | CNRS, Icube Laboratory

May 2023 – July 2023

*Learning Signed Distance Function of a parametric human model, supervised by Pr. Hyewon Seo*

*Strasbourg, FR*

- Designed a Multilayer Perceptron model architecture to reconstruct a 3D Skinned Multi-Person Linear Model utilizing Signed Distance Functions optimizing by **30%** the runtime compared to the SMPL papers algorithm.
- Implemented the model using Pytorch, and enhanced the performance and portability of the model with ONNX. Visualized the accuracy with Matplotlib and performance on reconstructing the 3D Mesh using Blender.
- Enhanced representation and precision model's ability in reconstructing complex shapes by **32%** using Gaussian Fourier features mapping technique which renders state of the art 3D human model reconstruction with NN.
- Built a specialized algorithm for dataset generation, efficiently producing **15 Million** training and testing data tailored to meet the specific requirements of the model leveraging PyTorch's GPU computation efficiency.

## PROJECTS & AWARDS

### Track | ReactJS, NodeJS, MongoDB, ExpressJS, TailwindCSS

August 2022 – Present

*An expense tracker website addressing financial freedom and budgeting skills.*

*Toronto, CA*

- Secured **1st place** out of **300+ Hackers** at **HackThe6ix '22**
- Led a team of 4: delegating tasks, regular progress check-ins, providing technical guidance, and helping debugging.
- Designed and implemented the backend architecture using Node.js and Express.js, creating a robust foundation for the Company and Personal Expense Tracker features. Leveraged MongoDB for efficient data storage and retrieval.
- Utilized ReactJS to develop dynamic and responsive front-end components, seamlessly integrating with the backend to deliver a cohesive user experience. Employed TailwindCSS for streamlined and visually appealing UI/UX.

### RidOF | ReactJS, Flask, YOLOv3, MySQL, TailwindCSS

September 2022 – Present

*An educational application aimed at simplifying the process of recycling objects of daily life.*

*Berlin, DE*

- Achieved **3rd place** out of **200+ Hackers** at **//Slash Hack '22**
- Led the development of the core frontend utilizing ReactJS, designing Landing, Explore, Item, and FAQ pages. Ensuring an intuitive and user-friendly interface for the educational application and allowing seamless navigation.
- Integrated webcam-react for real-time guidance, harnessing the power of YOLOv3 AI for object recognition. Leveraged Flask for backend operations, ensuring robust communication between the front end and YOLOv3.
- Utilized Git for version control and collaborated with developers to ensure smooth integration of features.

## TECHNICAL SKILLS

**Languages:** C, C++, Python, JavaScript, TypeScript, Haskell, Java, Bash, SQL.

**Framework/Tools:** Pytorch, NumPy, Matplotlib, Flask, React, MongoDB, NodeJS, TailwindCSS, Figma, Git, Docker

**Human Languages:** English (Fluent), French (Native), German (Intermediate)

## LEADERSHIP & INTERESTS

- Founder of *Unistr'Hack* Hackathon and Tech Event Organiser at *University of Strasbourg Coding Club*
- Co-organiser of the unConference *GitHub Field Day* in Berlin 2022 & Staff Volunteer at *EYE '23*
- I enjoy Running, Skiing, playing Football, Travel, Competitive Programming and Chess (~1100 elo)