

# VALENTIN VIAL

Dynamic and dedicated French **Electrical Engineering student**.

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## EDUCATION

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### Georgia Institute of Technology

2023 – expected 2024

Electrical and Computer Engineering

- **Robotics :**
  - Implemented SLAM, sensor fusion, path planning and obstacle avoidance techniques on Turtlebots. Studied different needs of robots in terms of kinematics and sensors.
  - Developed a ROS package mapping wifi signal of a place floor with autonomous exploration.
- **Bacteria adhesion study :**
  - Provide computer vision techniques to help biologist researchers studying bacteria adhesion on glass. Pre-labelled images using image processing techniques and setted up Model Assisted Labeling on LabelBox.
  - Trained a Yolov5 model to detect and track bacterias on videos using a Kalman filter.
- **Adaptative control**
  - Simulating adaptative controller on different systems, including noisy ones and studied how to improve performances. Picked a reference model and tried to achieve tracking.
  - Designed and compared linear and non linear controllers for a planar bi-rotor helicopter.
- **Optimal control theory**
  - Analytical approach to find the optimal control with respect to different constraints.

### ENSEA – French Electronics and Computer engineering school

2023 – expected 2024

Master of Science in Embedded Electronics – Dual Master's Degree student

- **Specialized in Computer Vision and Image processing :**
  - Developed fully connected neural network and optimizer in C.
  - Applied image processing techniques, face detection and 3D processing.
- **Robotic project :** Autonomous collector bot challenge
  - PCB design, Sensor intergration and communication (I2C, SPI, USART) .
  - C and C++ firmware development. Used FreeRTOS to meet real time specifications.
  - Designed, trained and implemented a tiny machine learning model on STM32.
- **Robotic project :** Reusable rocket launcher PoC with French National Space Center collaboration.
  - Designed a mechanical system to control rocket orientation. Implemented a linear controller.
  - Tested different actuators and tested robustness of the mechanism.
- Other majors in **Signal Processing** and general **Electronics**.

## WORK EXPERIENCE

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### Machine Learning Intern

Summer 2022

VergeSense, Mountain View, CA

- VergeSense is analysing workplaces usages on recorded videos and pictures.
- Evaluated **performances of models** in different environnements (lenses, brightness, density).
- Bring metrics to light up **recurring anomalies** in models predictions and tried to solve them.
- Participated in **data collection** & annotation.
- Developed a web troubleshooting tool with Streamlit and dockerized it.
- Understood how environnements can induce unexpected behaviors considering training data.

## ADDITIONNAL

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- **School National challenge** of french "Grandes Ecoles" (2018 – 2019) :
  - Designed an autonomous ship prototype looking for planes black box.
  - Studied flow dynamics of the hull on Solidworks.
  - Assemble a prototype with a **GPS** and a **compass**, created a navigation algorithm on **Arduino**.
- **Technical team member** at Junior ENSEA, a student-run organization which provide services.
  - Studied customer projects **feasibility** and estimated cost.
- **Social events team member** of a humanitarian association : Hum'ENSEA.
  - Developed and executed successful fundraising events to secure funding for the installation of solar panels for underprivileged communities in Africa.
- **Student board member**
  - Responsible of sponsor partnerships.
  - Organized sponsored events to finance integration trip.

## SKILLS

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- **French native, Fluent English** (910 TOEIC), Intermediate German speaker.
- Played soccer competitively during 10 years. Now focusing on **padel tennis**.
- Enjoy flying planes in my spare time, obtained first certification in 2015. (~30h of flight since 2017)
- Adventurer, I love going out of my comfort zone, discovering new places and cultures.