MATHIS LE GALL

COMPUTER SCIENCE INTERNSHIP

ABOUT ME

Second-year student at ISIMA specialized in scientific computing and modeling.
Passionate about mathematics & coding.

CONTACT

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LANGUAGES

- French, mother tongue
- English, advanced level
- Spanish, intermediate level

EDUCATION

COLLEGE OF ENGINEERING IN COMPUTER SCIENCE

ISIMA - CLERMONT-FERRAND, FRANCE (2021-2024)

- Specialization in scientific computing and modeling.
- Random and statistical modeling.
- Scientific computing and data science.
- Mathematical programming and operations research.

TWO-YEAR PREPARATORY COURSE FOR THE COMPETITIVE ADMISSION TO A FRENCH GRANDE ÉCOLE

LA PÉROUSE-KERICHEN - BREST, FRANCE (2019-2021)

- Mathematics and Physics pathway.
- Project: Operation & Security of ElGamal's encryption system.

BACCALAURÉAT SCIENTIFIQUE

LYCÉE CHARLES DE FOUCAULD - BREST, FRANCE (2019)

- Magna cum laude.
- Option: English European Section.

EMPLOYMENT HISTORY

VIVIERS DE KERALIOU

PLOUGASTEL-DAOULAS, FRANCE (July 2020 & 2022)

- Seafood revisions and order preparation.

TOMATO GREENHOUSES

PLOUGASTEL-DAOULAS, FRANCE (July 2021)

- Tomato picking and leaf removal.

SKILLS

- **PROGRAMMING**

- Python.
- C, C++.
- Java.
- SQL, PLSQL.
- OCaml, Scheme.
- Shell, Bash.
- MATLAB.

- **OTHERS**

- Oracle Database.
- Microsoft Office suite.

SOFT SKILLS

- **PERSONAL**

- Motivated.
- Dynamic.
- Autonomous.
- Teamwork.
- Flexible.

- **OTHERS**

- Car licence
- CyberEdu Label ANSSI - National Agency for Information Systems Security

VARIOUS DETAILS

- 14 years of football experience.
- Responsible and captain of the football section at ISIMA.
- Other hobbies: video games, music.

SURAVENIR

BREST, FRANCE (2018)

- Observation internship in the field of life insurance and retirement.
- A week of observation of jobs related to computer science and customer relations.

PROJECTS

JOB SCHEDULING PROBLEM

ISIMA (October 2022-March 2023)

- N tasks and M machines such as N>M.
- Optimization of the tasks' completion time taking into account the setup times.
- Use of heuristics to create a solution of the problem.
- Use of genetics algorithms to create children population using crossovers and mutation.
- Implementation of reinforcement learning.

REINFORCEMENT LEARNING

ISIMA (2 weeks in 2022)

- Use of the C language and the SDL2 library.
- Creation of a graphic game, based on the movement of a character who has to move through different areas using teleporters.
- Implementation of an artificial intelligence that learns to play the game over generations.
- Use of Markov chains to assess the position the character is in, in order to simulate intelligent behaviour.

OPERATION & SECURITY OF ELGAMAL'S ENCRYPTION SYSTEM

KERICHEN two-year preparatory course (2020-2021)

- Asymmetric key encryption based on the difficulty of finding discrete logarithm in a cyclic group.
- Use of Miller–Rabin primality test to find a large prime number securing the exchanges.
- Example of a possible attack on the encryption system using the Pohlig-Hellman Attack and Chinese Remainder Theorem principle, showing the importance of choosing the right prime number.