JULES GOMEL

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ABOUT ME

PhD Student at ISAE-Supaero researching neuromarkers of visual information encoding and Brain-Computer Interfaces. Passionate about advancing neuroengineering through innovative research in human-computer interaction and signal processing. Always looking to improve collective and personal workflows for better productivity and research.

EDUCATION

Master of Neuroengineering and Signal Processing, ISAE-Supaero (FRANCE) 2024

Bachelor of Mathematics, Physics and Engineering science, ISAE-Supaero (FRANCE) 2018 - 2021

SKILLS

Technical Skills	Python, EEG Signal Processing, , Machine Learning, Experimental design, JavaScript,
Soft Skills	Teamwork, Communication, Leadership, Passion

EXPERIENCE

PhD Student Dec 2024 - Present
ISAE-Supaero under the supervision of Dr Frederic Dehais *Toulouse, FRANCE*

- Researching EEG neuromarkers for visual information integration using advanced signal processing and machine learning techniques.
- Implemented agile workflow using GitLab for our project team, now commonly used. Organized regular meetings with junior researchers that are now twice a month.
- Taught neuroergonomics practical sessions at ISAE-Supaero.

Research Engineer Mar - Nov 2024
ISAE-Supaero under the supervision of Dr Frederic Dehais *Toulouse, FRANCE*

- Developed multiple features for the lab's BCI system, now actively used for research and development, including real-time visualization and performance evaluation, using Timeflux BCI framework.
- Developed dynamic feedback features for the BCI of the lab. Conducted an experiment to evaluate the effect of this feebdack on users.

Research Technician Mar - Aug 2023
Drexel University, under the supervision of Dr Hasan Ayaz *Philadelphia, PA (USA)*

- Benchmarked the performance of Generative Adversarial Networks (GANs) for recovering missing fNIRS data, demonstrating limitations compared to autoregressive models and interpolation techniques.

EXTRA-CURRICULAR ACTIVITIES

- Organized multiple vulgarization conferences about neuroergonomics and psychology at ISAE-Supaero.
- Coursera classes during free time : Medical Neurosciences, User Interface, Game Design.
- Development of mods for video games (C)

PUBLICATIONS

- Textured stimuli for enhanced user comfort in SSVEP BCI **(In preparation)**
- Offline benchmark of the Starburst reactive BCI paradigm **(In preparation)**
- Effects of visual pre-decision feedback on user experience and decoding performance in cVEP-Burst BCI **(Submitted)**
- Assessing spatiotemporal and quality alterations in paretic upper limb movements after stroke in routine care: Proposal and validation of a protocol using IMUs versus MoCap **(Acknowledged)**

AWARDS

- Travel Award for the 11th BCI Meeting in Banff, AB, Canada
- 2nd place, Neuroergonomics 2024 Passive BCI Hackathon