

Quentin Brateau

ROBOTICS ENGINEER · EMBEDDED SYSTEMS

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TAMPERE UNIVERSITY

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KALEVANTIE 4, 33100 TAMPERE

Ph.D. Letter of Intent : Safe and resilient control of autonomous vessels in dynamic environments

Dear Madam/Sir,

I am Quentin Brateau, a French engineer in robotics. I was graduated in 2021 ENSTA Bretagne, in Brest, a prominent French graduate, post-graduate school, Research Institute, and doctoral college, which trains engineers in various fields of engineering such as Robotics, which is my specialty. I also was graduated the same year with a master of science in dynamical systems and signals from the University of Angers in France.

My academic training has a strong emphasis on Science because I have completed a two-year intensive post-secondary school preparation for the competitive entrance examination for the French Graduate Engineering Schools. During my internships, I had the opportunity to discover various fields of mobile robotics such as agriculture robotics with Tecnoma, vineyard robotics with Exxact Robotics, and underwater robotics with Forssea Robotics. I am then very familiar with the industrial application of robotics.

During my studies, I learned the basics of robotics such as robot mechanical conception, hardware design, simulation, and low-level control. I was also able to build a solid foundation in information technology through courses on applied mathematics, image and signal processing, machine learning, embedded operating systems. Additionally, I was able to reinforce my knowledge in robotics by learning control theory, probabilistic and set methods for state estimation, navigation, and path planning.

Thanks for your time and consideration. I genuinely believe that my experience and education would make me a valuable asset to the mechatronics research group. I believe my skills and motivation make me a great potential asset. I can be reached by phone and email if you need any further information.

Introduction

Problem Statement

- How to ensure collision-free control of a system in a dynamic environment?
- How can we ensure the security and resilient control of a system that operates in degraded mode?
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Research Methods

Preliminary Schedule

| | Preliminary Schedule | | | | | | | | | | | | | | | |
|----------------------------------|----------------------|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|
| | 2022 | | 2023 | | | | 2024 | | | | 2025 | | | | 2026 | |
| | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| State of the Art | | | | | | | | | | | | | | | | |
| Modelling and Simulation | | | | | | | | | | | | | | | | |
| Laboratory and Field Experiments | | | | | | | | | | | | | | | | |
| Article and Thesis | | | | | | | | | | | | | | | | |

Conclusion

Veuillez agréer, Messieurs, l'assurance de ma considération distinguée,

Quentin Brateau