

Maëlic NEAU

PHD CANDIDATE · COMPUTER SCIENCE

19/11/1998 · 26 YEARS OLD

ENIB, 945 Av. du Technopôle, 29280 Plouzané, France

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Robotics and AI enthusiast with a strong background and academic excellence record. Currently pursuing a PhD through a cotutelle agreement between Flinders University (Australia) and ENIB (France). My research focuses on Computer Vision, Natural Language Processing, and Knowledge Representation applied to Social Robotics. I am particularly interested in representing high-level content from images and videos, such as visual relationships.

Education

Flinders University

Sturt Rd, Bedford Park SA 5042, Australia

Ecole Nationale d'Ingénieurs de Brest (ENIB)

945 Av. du Technopôle, 29280 Plouzané, France

PHD IN COMPUTER SCIENCE (COTUTELLE)

2021 - present

- Title: Real-Time And Efficient Scene Graph Generation for Real-World Applications: An End-to-End Investigation
- Supervisors: Pr. Cédric Buche, Assoc. Pr. Paulo E. Santos, Assoc. Pr. Anne-Gwenn Bosser, Pr. Karl Sammut

Université de Bretagne Occidentale

6 Avenue Victor Le Gorgeu, 29238, Brest, France

MASTER OF COMPUTER SCIENCE

2019 - 2021

- Majors in Robotics and Artificial Intelligence
- Exchange Student at Umeå University, Umeå, Sweden (6 months)

Université de Bretagne Occidentale

6 Avenue Victor Le Gorgeu, 29238, Brest, France

BACHELOR OF COMPUTER SCIENCE

2018 - 2019

- Major in Software Engineering

Research Experience

National Institute of Informatics

Tokyo, Japan

SUPERVISOR: PR. AKIHIRO SUGIMOTO

10/2024 - 03/2025

- Internship: Toward Open-Vocabulary Scene Graph Generation.

Ecole Nationale d'Ingénieurs de Brest

Plouzané, France

SUPERVISOR: PR. CÉDRIC BUCHE

02/2021 - 08/2021

- Master thesis: A Domestic Service Robot study case: from Object Manipulation to Perception and Learning.

Ecole Nationale d'Ingénieurs de Brest

Plouzané, France

SUPERVISOR: PR. CÉDRIC BUCHE

04/2020 - 08/2020

- Internship: Simultaneous Localization And Mapping (SLAM) with ROS (Robot Operating System) and Pepper robot.

Northern Kentucky University - College of Informatics

Highland Heights, KY, USA

SUPERVISOR: PR. RICHARD FOX

04/2018 - 07/2018

- Internship: Artificial Intelligence applied to software engineering.

Publications

2024

(Under Review) **Maëlic Neau**, Paulo Santos, Anne-Gwenn Bosser, Cédric Buche. 2024. REACT: Real-time Efficiency and Accuracy Compromise for Tradeoffs in Scene Graph Generation. <https://arxiv.org/abs/2405.16116>

Maëlic Neau, Alistair MacVicar, Paulo Santos, Anne-Gwenn Bosser, Cédric Buche. 2024. Mining Informativeness in Scene Graphs: Prioritizing Informative Relations in Scene Graph Generation for Enhanced Performance in Applications. *Pattern Recognition Letters*, 2024. Rank: Q1

2023

Cédric Buche, **Maëlic Neau**, Thomas Ung, Louis Li, Sinuo Wang, Cédric Le Bono. 2023. RoboCup@ Home SSPL Champion 2023: RoboBreizh, a Fully Embedded Approach. *RoboCup 2023: Robot World Cup XXVI* (pp. 374–385). Rank: B DOI: 10.1007/978-3-031-55015-7_31

Maëlic Neau, Paulo Santos, Anne-Gwenn Bosser, Cédric Buche. 2023. Fine-Grained is Too Coarse: A Novel Data-Centric Approach for Efficient Scene Graph Generation. *First ICCV Workshop on Scene Graphs And Graph Representation Learning (SG2RL) - ICCV 2023*. DOI: 10.1109/ICCVW60793.2023.00008

Sinuo Wang, **Maëlic Neau**, Cédric Buche. 2023. RoboNLU: Advancing Command Understanding with a Novel Lightweight BERT-based Approach for Service Robotics. *RoboCup 2023: Robot World Cup XXVI* (pp. 29-41). Rank: B DOI: 10.1007/978-3-031-55015-7_3

Maëlic Neau, Paulo Santos, Anne-Gwenn Bosser, Cédric Buche. 2023. In Defense of Scene Graph Generation for Human-Robot Open-Ended Interaction in Service Robotics. *RoboCup 2023: Robot World Cup XXVI* (pp. 299-310). Rank: B DOI: 10.1007/978-3-031-55015-7_25

Natnael Wondimu, **Maëlic Neau**, Antoine Dizet, Ubbo Visser, Cédric Buche. 2023. Anthropomorphic Human-Robot Interaction Framework: Attention Based Approach. *RoboCup 2023: Robot World Cup XXVI* (pp. 262-274). Rank: B DOI: 10.1007/978-3-031-55015-7_22

Louis Li, **Maëlic Neau**, Thomas Ung, Cédric Buche. 2023. Crossing Real and Virtual: Pepper Robot as an Interactive Digital Twin. *RoboCup 2023: Robot World Cup XXVI* (pp. 275-286). Rank: B DOI: 10.1007/978-3-031-55015-7_23

2022

Cédric Buche, **Maëlic Neau**, Thomas Ung, Louis Li, Tianjiao Jiang, Mukesh Barange, Maël Bouabdelli. 2022. RoboBreizh, RoboCup@Home SSPL Champion 2022. *RoboCup 2022: Robot World Cup XXV* (pp. 203-214). DOI: 10.1007/978-3-031-28469-4_17

Thanh Tran, **Maëlic Neau**, Paulo E. Santos and David Powers. 2022. Contrastive Visual and Language Learning for Visual Relationship Detection. *The 20th Annual Workshop of the Australasian Language Technology Association* (No. 20, pp. 170-177). Link: aclanthology.org/2022.alta-1.23

Maëlic Neau, Paulo E. Santos, Anne-Gwenn Bosser, Cédric Buche, Nathan Beu. 2022. Commonsense Reasoning for Identifying and Understanding the Implicit Need of Help and Synthesizing Assistive Actions. *2022 AAAI Symposium on Machine Learning and Knowledge Engineering - AAAI MAKE*. Link: ceur-ws.org/Vol-3121/short6.pdf

Awards, Fellowships, & Grants

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| 2023 | Higher Degree by Research Leadership & Scholarly Excellence Award , Flinders University | \$500 |
| | Travel Grant Award , SG2RL Workshop - ICCV 2023 | \$500 |
| | First Place , RoboCup@Home Competition - Social Standard Platform League | |
| 2022 | Doctoral Travel Grant , Brittany Doctoral School | \$2400 |
| | First Place , RoboCup@Home Competition - Social Standard Platform League | |
| 2021 | Third Place , RoboCup@Home Competition - Social Standard Platform League | |
| 2020 | Best Performance Award , RoboCup@Home Education Challenge | |

Presentations

* *presenting author*; + *mentored undergraduate*

INVITED TALKS

Spring 2023. *Introduction to Robotics*. Guest Lecture, Fundamentals of Computational Intelligence, Flinders University.

Fall 2020. *Design Of A Modular Architecture Using ROS: The Pepper Case*. RoboCup@Home Education Online classroom, Invited Lecture Series, Online.

CONTRIBUTED PRESENTATIONS

Maëlic Neau*, Paulo E. Santos, Anne-Gwenn Bosser and Cédric Buche. 2023. *Fine-Grained is Too Coarse: A Novel Data-Centric Approach for Efficient Scene Graph Generation*. Oral Presentation: First ICCV Workshop on Scene Graphs And Graph Representation Learning (SG2RL) - ICCV 2023, Paris, France.

Maëlic Neau*, Paulo Santos, Anne-Gwenn Bosser, Cédric Buche and Nathan Beu. 2022. *Commonsense Reasoning for Identifying and Understanding the Implicit Need of Help and Synthesizing Assistive Actions*. Oral presentation: 2022 AAAI Symposium on Machine Learning and Knowledge Engineering, Online.

Teaching Experience

2023 **Fundamentals of Computational Intelligence**, Teaching Assistant (1 semester)

Flinders University

Mentoring

2024 **Alistair Macvicar**, Research Internship, Flinders University

2023 **Nilesh Ramgolan**, Research Internship, University of Adelaide

2023 **Sinuo Wang**, Research Internship, University of Adelaide

2022 **Thomas Ung**, Master Thesis, Université de Bretagne Occidentale

2022 **Valentin Lopez & Trajano Mena**, Research Internship, Ecole Nationale d'Ingénieurs de Brest

Outreach & Professional Development

OUTREACH

RoboCup@Home SSPL, Technical Lead of Team RoboBreizh

2020 - 2023

PEER REVIEW

33rd International Conference on Artificial Neural Networks, ICANN 2024

Second Workshop on Scene Graphs And Graph Representation Learning (SG2RL), CVPR 2024

First Workshop on Scene Graphs And Graph Representation Learning (SG2RL), ICCV 2023

Spatial Cognition and Computation: An Interdisciplinary Journal

References

Pr. Cédric Buche

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ENIB / Naval Group Pacific, Adelaide, Australia

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Assoc. Pr. Paulo E. Santos

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Flinders University / PrioriAnalytica, Adelaide, Australia

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Pr. Akihiro Sugimoto

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National Institute of Informatics, Tokyo, Japan

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