



# Adam Seewald, Curriculum Vitae




Most recent version: [adamseewald.cc/cv](https://adamseewald.cc/cv), 

Webpage	<a href="https://adamseewald.cc">adamseewald.cc</a>	<ul style="list-style-type: none"> <li>I am currently a postdoc at the GRAB Lab, Yale University, and an incoming postdoc at the Environmental Robotics Lab, ETH Zürich</li> <li>My research focuses on robotics and computer science and involves autonomous robots in different environmental use cases</li> <li>I was born on November 27, 1993, in Bratislava, Slovakia, and I am fluent in Czech, English, Italian, and Slovak</li> </ul>
Email	<a href="mailto:adam@seewald.email">adam@seewald.email</a>	
Phone	+1 (774) 333-2250	
Address	Mason Lab, Yale University 9 Hillhouse Avenue New Haven, CT 06511 USA	

## Education

2018-2022	<b>Ph.D., Engineering Science, University of Southern Denmark</b>
	Thesis Energy-aware coverage planning and scheduling for autonomous aerial robots, 
	Advisor Prof. Ulrik Pagh Schultz
2016-2018	<b>Master, Computer Science and Engineering, University of Verona, Italy</b>
	Thesis Evaluation of optimal trajectories for quadrotors with indirect methods in the presence of intermediate constraints
	Advisor Prof. Paolo Fiorini
2013-2016	<b>Bachelor, Computer Science, University of Verona, Italy</b>

## Experience

2024-	<b>Postdoc, Environmental Robotics Lab, Dept. of Environmental Systems Science, ETH Zürich</b>
	Project Robot-assisted collection of eDNA for pest detection in precision agriculture,  (PI: Stefano Mintchev)
	Funding World Food System Center and Fenaco's research program on smart sustainable farming
	Details Development of techniques (i.e., aerial-physical interaction, RGB-D perception, etc.) for the collection and analysis of environmental DNA samples for the detection of pests in precision agriculture.
2022-2024	<b>Postdoc, GRAB Lab, Dept. of Mechanical Eng. and Materials Science, Yale University</b>
	Project Mobile ground-based and aerial robots for biodiversity surveying,  (PI: Aaron M. Dollar)
	Funding Yale University's discretionary research fund
	Details Development of mobile robotic autonomy (i.e., navigation, control, and planning algorithms and communication methodologies) for nature conservation and surveying efforts [ <a href="#">c7</a> , <a href="#">c6</a> ].
2018-2022	<b>Ph.D. Researcher, Unmanned Aerial Systems Center, University of Southern Denmark</b>
	Project TeamPlay – Time, Energy, and security Analysis for Multi/Many-core heterogeneous PLAtforms,  (PI: Ulrik Pagh Schultz)
	Funding European Union's Horizon2020 program under grant agreement number 779882
	Details Development of the aerial robotics use case [ <a href="#">c4</a> ] (i.e., fixed-wing aerial robot for precision agriculture). Development of an open-source motion planning/computing energy modeling library [ <a href="#">j1</a> , <a href="#">o1</a> ] utilized by a network of collaborators including University of Amsterdam, University of Bristol, and INRIA.

## Research

Peer-reviewed journal publication:

- [j1] • [Adam Seewald](#), Ulrik Pagh Schultz, Emad Ebeid, and Henrik Skov Midtiby, “**Coarse-grained computation-oriented energy modeling for heterogeneous parallel embedded systems**,” in *International Journal of Parallel Programming*. 2021; vol. 49, no. 2, pp. 136–157. [10.1007/s10766-019-00645-y](#), [↗](#)

Peer-reviewed conference publications (7):

- [c7] • [Adam Seewald](#), Cameron J. Lerch, Marvin Chancán, Aaron M. Dollar, and Ian Abraham, “**Energy-aware ergodic search: Continuous exploration for multi-agent systems with battery constraints**,” to appear in *IEEE International Conference on Robotics and Automation (ICRA’24)*, p. 7. [↗](#)
- [c6] • [Adam Seewald](#), Marvin Chancán, Connor M. McCann, Seonghoon Noh, Omeed Fallahi, Hector Castillo, Ian Abraham, and Aaron M. Dollar, “**RB5 Low-cost explorer: Implementing autonomous long-term exploration on low-cost robotic hardware**,” to appear in *IEEE International Conference on Robotics and Automation (ICRA’24)*, p. 7. [↗](#)
- [c5] • Benjamin Rouxel, Christopher Brown, Emad Ebeid, Heiko Falk, Clemens Grelck, Jesper Holst, Shashank Jadhav, Yoann Marquer, Marcos Martinez Alejandro, Kris Nikov, Ali Sahafi, Ulrik Pagh Schultz, [Adam Seewald](#), Vangelis Vassalos, Simon Wegener, and Olivier Zendra, “**The TeamPlay project: Analysing and optimising time, energy, and security for cyber-physical systems**,” in *Design, Automation and Test in Europe Conference (DATE’23)*, pp. 1–6. [10.23919/DATE56975.2023.10137198](#), [↗](#)
- [c4] • [Adam Seewald](#), Héctor García de Marina, Henrik Skov Midtiby, and Ulrik Pagh Schultz, “**Energy-aware planning-scheduling for autonomous aerial robots**,” in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS’22)*, pp. 2946–2953. [10.1109/IROS47612.2022.9981285](#), [↗](#)
- [c3] • Georgios Zamanakos, [Adam Seewald](#), Henrik Skov Midtiby, and Ulrik Pagh Schultz, “**Energy-aware design of vision-based autonomous tracking and landing of a UAV**,” in *IEEE International Conference on Robotic Computing (IRC’20)*, pp. 294–297. [10.1109/IRC.2020.00054](#), [↗](#)
- [c2] • [Adam Seewald](#), Héctor García de Marina, Henrik Skov Midtiby, and Ulrik Pagh Schultz, “**Mechanical and computational energy estimation of a fixed-wing drone**,” in *IEEE International Conference on Robotic Computing (IRC’20)*, pp. 135–142. [10.1109/IRC.2020.00028](#), [↗](#)
- [c1] • [Adam Seewald](#), Ulrik Pagh Schultz, Julius Roeder, Benjamin Rouxel, and Clemens Grelck, “**Component-based computation-energy modeling for embedded systems**,” in *ACM SIGPLAN International Conference on Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH’19)*, pp. 5–6. [10.1145/3359061.3362775](#), [↗](#)

Peer-reviewed workshop publications (2):

- [w2] • [Adam Seewald](#), “**Beyond traditional energy planning: The weight of computations in planetary exploration**,” in *IROS Workshop on Planetary Exploration Robots: Challenges and Opportunities (PlanRobo’20)*, p. 3. ETH Zürich. [10.3929/ethz-b-000450120](#), [↗](#)
- [w1] • [Adam Seewald](#), Emad Ebeid, and Ulrik Pagh Schultz, “**Dynamic energy modelling for SoC boards: Initial experiments**,” in *Workshop on High-Level Programming for Heterogeneous and Hierarchical Parallel Systems (HLP-GPU’19)*, p. 4. [↗](#)

Others (2):

- [o2] • [Adam Seewald](#), “**Energy-aware coverage planning and scheduling for autonomous aerial robots**,” Ph.D. thesis, p. 184. Syddansk Universitet. Det Tekniske Fakultet, 2021. [10.21996/7ka6-r457](#), [↗](#)
- [o1] • [Adam Seewald](#), Ulrik Pagh Schultz, Emad Ebeid, and Henrik Skov Midtiby, “**powprofiler computations energy modeling tool**,” v. 1.0.2, 2021. [10.5281/zenodo.5562457](#), [↗](#)

## Invited lectures

---

- **Solving energy-aware ergodic search problems via interior point methods.** Invited Speaker at the ICRA Tutorial on Ergodic Control, IEEE International Conference on Robotics and Automation. May 13, 2024. [↗](#)
- **Energy-aware dynamic planning: Merging path planning and computations scheduling for the drone use-case.** Invited Talk at the TeamPlay Final Workshop. Odense, Denmark (Virtual Event), May 27, 2021.
- **Energy estimation and modeling for the drone use-case.** Invited Talk at the TeamPlay Workshop, European Network on High-Performance Embedded Architecture and Compilation Conference. January 22, 2020.

## Teaching and advising

---

Teaching at graduate and undergraduate levels (2):

Fall 2022	<b>You, Your Planet, and a Sustainable Future</b> , Yale University
Role	Teaching assistant (PI: Aaron M. Dollar)
Details	Survey course on sustainable technologies for undergraduate students in engineering and environmental science.

---

Spring 2019,'20	<b>Optimization and Control</b> , University of Southern Denmark
Role	Teaching assistant (PI: Agus Hasan)
Details	Elective course on numerical optimization, methods and solvers, for master's students in robot systems.

---

Advising of graduate and undergraduate students (2):

- **Omeed Fallahi**, undergraduate student in computer science, Yale University, 2022–2023
- **Magnus O. C. Liisberg**, master's student in robot systems, University of Southern Denmark, 2018–2019

## Professional and outreach activities

---

- **Member**, Institute of Electrical and Electronics Engineers (IEEE), 2019–
- **Member**, Association for Computing Machinery (ACM), 2019–
- **Organizer** of the Time, Energy, and Security Analysis for Multi/Many-core Heterogeneous Platforms Final Workshop (TeamPlay'21)
- **Program Committee member**, IEEE International Conference on Robotic Computing (IRC'23,'22,'21), [↗](#)
- **Reviewer**, IEEE Robotics and Automation Letters (RA-L), [↗](#)
- **Reviewer**, IEEE International Conference on Soft Robotics (RoboSoft'24), [↗](#)
- **Reviewer**, IEEE International Conference on Robotics and Automation (ICRA'24), [↗](#)
- **Reviewer**, IEEE International Conference on Automation Science and Engineering (CASE'23), [↗](#)
- **Reviewer**, IEEE International Conference on Robot and Human Interactive Communication (Ro-man'22)
- **Reviewer**, IEEE International Conference on Unmanned Aircraft Systems (ICUAS'22), [↗](#)
- **Reviewer**, International Workshop on Robotics Software Engineering (RoSE'22), [↗](#)
- **Reviewer**, IEEE International Conference on Unmanned Aircraft Systems (ICUAS'21)
- **Reviewer**, IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV'20)

## References

---

Prof. Aaron M. Dollar, [↗](#)

Department of Mechanical Engineering and Materials Science

Yale University

[aaron.dollar@yale.edu](mailto:aaron.dollar@yale.edu)

Prof. Ulrik Pagh Schultz, [↗](#)

SDU UAS Center

Mærsk Mc-Kinney Møller Institute

University of Southern Denmark

[ups@mmmi.sdu.dk](mailto:ups@mmmi.sdu.dk)

Prof. Agus Hasan, [↗](#)

Department of Natural Sciences

Norwegian University of Science

and Technology

[agus.hasan@ntnu.no](mailto:agus.hasan@ntnu.no)

Last updated: February 26, 2024