D. Hood

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ABOUT

Industrious
Commenced university aged 15 and placed at the top of three degrees (undergrad/postgrad), while president/chair of various extracurricular activities

Explorer
Lived/worked in 8 countries with 4 local languages; visited 45 countries

Proactive
Side-projects include open source contributions (Python 3, OpenCV & Eigen C++ libraries), the Recurse Center (2015) and community-led design projects in Colombia (2016), Nicaragua (2015) and Zambia (2013)

Ambassador
STEM promoter through local outreach events and international TV-, radio- and print-based media coverage of humanitarian engineering projects

EDUCATION

M. SC. COMPUTER VISION & ROBOTICS
Highest-ranked graduate

2012-2014; EPFL CH, Heriot-Watt GB, Uni. of Girona ES, Uni. of Burgundy FR; GPA: 9.4/10.0

Autonomous robotics, multi-sensor fusion, advanced image analysis, etc.

B. MATHEMATICS
University Medalist

2007-2011; QUT AU; GPA: 6.94/7.0

Statistics (modelling, analysis) & computational mathematics specialisations

B. ENG. (ELECTRICAL)
Engineers Australia Medalist

2007-2011; QUT AU; GPA: 6.89/7.0

Embedded systems & control systems specialisations

EXPERIENCE

SENIOR ROBOTICS ENGINEER, INVENTIA LIFE SCIENCE
Mar 2020 – Aug 2022 | Sydney, AU

Lead roboticist on skin-printing robot for burns survivors
- System integrator for the KUKA LBR Med robotic arm, designer of electrical and software architecture under medical device standards.
- Current finalist in the KUKA Innovation Award - Medical Robotics.

Firmware engineer on 3D bioprinter for cancer researchers
- EEPROM-based firmware identification to support printer fleet with multiple hardware variants; improved Python-based test systems.
- Recipient of the 2020 Fast Company World-Changing Ideas Award - Innovation category.

SOFTWARE ENGINEER, OPEN ROBOTICS
Feb 2016 – Oct 2018 | Silicon Valley, USA
Robot Operating System Development Team, ROS 2 focus
- Cross-platform development (Ubuntu, Windows, MacOS) of ROS 2 features leveraging layered architecture. E.g. logger system with its core in C, supporting objects in the Python and C++ client libraries.
- Features for Jenkins CI/buildfarm, IDing root-cause of regressions.
- Open source community management: giving update presentations, troubleshooting user systems, soliciting and reviewing contributions.
- Maintainer of ROS 1 package RViz and the ROS wiki.

Software lead on "ARIAC" competition (NIST project)
- In-simulation agility challenges and automated scoring for industrial robot competition in Gazebo simulator (AUD25k in prizes).
- Automated generation of Docker images from teams' installation scripts; batch processor evaluating all teams automatically.

POSTGRADUATE RESEARCHER, CHILI LAB EPFL
Feb – Sep 2014 | Lausanne, CH

Developer of the first robot children can teach to write
- Novel synchronisation of a robot with a tablet to mimic "writing."
- Novel AI for learning models of letters from children's demonstrations.
- Field trials at primary schools within 4 months of start. Publication at HRI'15 with >100 citations & winner of AAAI'15 video competition.

ELECTRONICS ENGINEER, ISSNIP LAB UNIMELB
Jan – Jul 2012 | Melbourne, AU

USB stethoscope for diagnosing pneumonia in Mozambique
- Diagnostic sensors to be embedded in a "smart stethoscope".
- Microcontrollers to interface with healthcare workers' phones.
- TED talk as finalist for TED2013.

UNDERGRADUATE RESEARCHER, SAIVT LAB QUT
Feb – Nov 2011 | Brisbane, AU

Brain-computer interface for actuated car simulator
- Electronic stimuli to evoke brain response; processing of brain signals to determine intent; networking & control of car steering.
- Published at AutoUI'12, 19 citations.

TUTOR, QUT, UTS & UNIMELB
Feb 2008 – current | Brisbane, Sydney & Melbourne, AU

Discrete maths, control systems, engineering maths, digital logic, + others. Proactively inspiring students with real-world applications.

UNDERGRAD INTERNSHIPS (2008-2010) NICTA, AEMO, Energex

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LEADERSHIP POSITIONS

2021-22	Co-Founder & Co-chair	Diversity, Equity and Inclusion at Inventia Life Science
2016-18	Organising & Program Committee	ROSCon: international ROS developer conference
2016-18	Founder & Manager	ROSCon Diversity Scholarship Program (AUD50k budget)
2022	STEM Ambassador	UTS STEMxChange education consultant to high school teachers
2012	Manager	Robogals Rural & Regional: nationwide ambassador program
2009-11	President	Industry-linked university student societies
2011-13	Course Representative	Undergraduate and postgraduate degrees
2008	Founder	QUT Women in Engineering mentoring program

PRESENTATIONS

2012	TED@Sydney	My Apollo 13 moment in disease diagnosis (part of the TED Talent Search)
2016	ROSCon	Overview of the internals of ROS 2 (keynote)
2015	AAAI Video Competition	A Robot That Children Can Teach to Write - The CoWriter Project (winning video)
2018	CODAME Art+Tech	Creativity needed while developing a robot partner for children learning handwriting
2018	SF Mini PyCon	The Python ROS interface: how does it communicate with other languages?
2018	ROSCon	Getting involved in ROS 2 development
2017	ARIAC Workshop at IROS	Behind the scenes of the simulation used for NIST's ARIAC competition
2022	Sydney Python Users	Template all the things! The python library powering robotics R&D worldwide
'12, '19, '22	Power of Engineering	Humanitarian applications of electrical engineering (keynote)
2021	Startmate Engineering Fellowship	The beauty (and frustration) of regulation when designing a medical device
2021	QUT AER-Con	Life as the Senior Robotics Engineer on a skin-printing robot
2018	Self-organised workshops	Making your first open source contribution
2010	QUT Engineering Week	Panel session with astronaut Andy Thomas

AWARDS

ACADEMIC/PROFESSIONAL

2022	Engineers Australia Young Engineer of the Year	Sydney division, current national finalist
2012	Erasmus Mundus Postgraduate Scholarship	AUD70k value, 1 of 7 awarded worldwide for "VIBOT" MSc.
2011	QUT University Medal	Top 0.5% of graduates university-wide (for B.Maths)
2011	Engineers Australia Electrical Branch Medal	Top graduate of QUT B.Eng.(Electrical)
2016	Google Code Jam to I/O Competition	Ranked 78th world-wide
2007-11	QUT Academic Excellence Awards	All eligible semesters

COMMUNITY LEADERSHIP

2013	Google Anita Borg Memorial Postgraduate Scholarship	EMEA region, AUD11k value
2012	Finalist for the General Sir John Monash Scholarship	Australia-wide, AUD150k value
2011	QUT Engineering John Kindler Memorial Medal	1 of 2 graduates awarded
2010	Brightest Young Minds summit delegate	1 of 100 selected Australia-wide
2009	Runner-up for the QLD Pride of Australia Young Leader Medal	1 of 3 finalists state-wide
2009	QUT Student Leadership Excellence Award	1 of 10 awarded university-wide
2006	Griffith University Logan Campus Medal	1 awarded as Kimberley College graduate

PUBLICATIONS

Hood, D. , Lemaignan, S., & Dillenbourg, P. (2015, March). When children teach a robot to write: An autonomous teachable humanoid which uses simulated handwriting. In *Proceedings of the Tenth Annual ACM/IEEE International Conference on Human-Robot Interaction* (pp. 83-90). ACM.

Lemaignan, S., Jacq, A., **Hood, D.** , Garcia, F., Paiva, A. and Dillenbourg, P., 2016. Learning by teaching a robot: The case of handwriting. *IEEE Robotics & Automation Magazine* , 23(2), pp.56-66.

Hood, D. , Joseph, D., Rakotonirainy, A., Sridharan, S., & Fookes, C. (2012, October). Use of brain computer interface to drive: preliminary results. *Proceedings of the 4th International Conference on Automotive User Interfaces and Interactive Vehicular Applications* (pp. 103-106). ACM.