Deanna Hood

2022 Australian Young Engineer of the Year

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MISSION

To motivate school students' participation in STEM subjects by inspiring them: serving as a role model, and sharing real stories of the positive impact that STEM careers are having on our society.

ABOUT

Industrious
Commenced university aged 15 and placed at the top of three degrees (undergrad/postgrad), despite being 2-3 years younger.

Explorer
Lived/worked in 9 countries with 5 local languages; visited 45 countries.

Proactive
Side-projects include volunteering repairing medical equipment in Nicaragua (2015), and community-led design projects in Colombia (2016) and Zambia (2013).

Ambassador
STEM promoter through school outreach events and international TV-, radio- and print-based media coverage of altruistic engineering projects. Spoke to 1,500 students in 2022 alone!

Media profiles at dhood.io/#news

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, probabilistic robotics, kinematics, optimisation, multi-sensor fusion, visual perception, advanced image analysis, etc.

B. MATHEMATICS
University Medalist (top 0.5%)

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

ARTERY-SCANNING ROBOT FOR DISEASE PREVENTION
Senior Robotics Engineer on Vexev Wave

Mar 2023 – current | Vexev | Lisbon, PT

- Working with vascular surgeons on a medical device to improve the detection and prevention of vascular diseases.
- Improving access to medical diagnostics in rural/underserved areas.

SKIN-PRINTING ROBOT FOR BURNS SURVIVORS
Lead roboticist on Ligo

Oct 2020 – Aug 2022 | Inventia Life Science | Sydney, AU

- Working with 2005 Australian of the Year Prof. Fiona Wood, inventor of "spray-on skin," to improve the lives of burns survivors with an alternative to skin grafts.
- Finalist in the KUKA Innovation Award - Medical Robotics; admitted into the Medical Devices Fund.

3D BIOPRINTER FOR CANCER RESEARCHERS
Firmware engineer on RASTRUM

Mar 2020 – Oct 2020 | Inventia Life Science | Sydney, AU

- Helping all types of biomedical researchers develop new treatments for disease by precision printing soft structures the size of a pinhead that include living human cells.
- Winner of the 2020 Fast Company World-Changing Ideas Award - Innovation category; Eureka Prize for Technology.

ROBOTICS FRAMEWORK USED BY NASA
Software engineer on ROS 2

Feb 2016 – Oct 2018 | Open Robotics | Silicon Valley, USA

- Robotics framework used by 10,000+ roboticists worldwide, from penguin conservation robots to self-driving cars, to robots on the International Space Station.
- The upcoming NASA VIPER lunar mission will use ROS 2.

FIRST ROBOT CHILDREN CAN TEACH HOW TO WRITE
Postgraduate robotics researcher on the CoWriter Project

Feb – Sep 2014 | CHILI Lab EPFL | Lausanne, CH

- Working with teachers and occupational therapists to develop an educational robot for children with handwriting difficulties.
- Novel AI for writing badly on purpose and learning from children.
- Publication at HRI'15 with >100 citations & winner of AAAI'15 video competition.

USB STETHOSCOPE FOR DIAGNOSING PNEUMONIA
Electronics engineer

Jan – Jul 2012 | ISSNIP Lab UniMelb | Melbourne, AU

- Diagnostic sensors to be embedded in a "smart stethoscope", to interface with healthcare workers' phones in Mozambique to help save children from preventable pneumonia.
- TED talk as finalist for TED2013.

BRAIN-CONTROLLED CAR EXPERIENCE SIMULATOR
Undergraduate engineering researcher

Feb – Nov 2011 | SAIVT Lab QUT | Brisbane, AU

- Brain-computer interface to control a car simulator with applications for people living with paralysis.
- Published at AutoUI'12. Featured on SCOPE national science TV show.

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

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AWARDS

Academic/Professional

2022	Engineers Australia Young Engineer of the Year	Single winner in Under 35 category, nation-wide
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 from Kimberley College graduates

PUBLICATIONS

Patent WO2021108870A1, Bioprinting system [non-contact, robot-delivered], Inventia Life Science Pty Ltd. 2019.

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.

PRESENTATIONS

2022	1,500 students across Australia*	The why and how of becoming an altruistic engineer
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 in 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	Altruistic 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

* "Learning about the opportunities that engineering careers have firsthand from Deanna opened our eyes to how there was a place in engineering for all of us." - Liley, Year 9

More testimonials at dhood.io/#speaking