

# Elizabeth Vargas

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CONTACT INFORMATION	Earl Mountbatten Building, G.06 Heriot-Watt University, Edinburgh United Kingdom, EH14 4AS <b>Phone:</b> (+44) · 7427 · 01 · 99 · 90 <b>Email:</b> elizabeth.vargas@hw.ac.uk	<b>Website:</b> <a href="https://evargasv.github.io/">https://evargasv.github.io/</a> <b>LinkedIn:</b> <a href="http://www.linkedin.com/in/evargasv">www.linkedin.com/in/evargasv</a>
PROFESSIONAL EXPERIENCE	<b>ORCA Hub</b> <i>Research Associate</i> <ul style="list-style-type: none"><li>• Computer Vision applied to Offshore Robotics for Certification of Assets (ORCA).</li><li>• Simultaneous Localisation And Mapping (SLAM) for underwater environments.</li><li>• Combination of Visual Odometry (VO) and Sensor Fusion methodologies (ROS).</li></ul> <b>Toshiba Medical Visualization Systems Ltd</b> <i>Research Intern with Corné Hoogendoorn</i> <ul style="list-style-type: none"><li>• Alzheimer Disease (AD) characterisation using Magnetic Resonance Imaging (MRI).</li><li>• Performed feature selection, classification and regression (Python, Scikit-learn).</li><li>• Texture analysis in hippocampus tissue to diagnose AD.</li></ul> <b>Philips GmbH, Research Laboratories</b> <i>Research Intern with Martin Weibrecht</i> <ul style="list-style-type: none"><li>• Magnetic Resonance Imaging (MRI) applied to characterisation of liver diseases.</li><li>• Features extraction from Diffusion Weighted MRI relevant for disease diagnosis.</li><li>• Implementation of a gray level based iterative segmentation algorithm employing threshold derived from histogram analysis (MATLAB).</li></ul>	Jan. 2019 - Present Edinburgh, United Kingdom Jun. 2015 - Sep. 2015 Edinburgh, United Kingdom Mar. 2011 - Jul. 2011 Aachen, Germany
EDUCATION	<b>Ph.D. Signal Processing</b> <i>Heriot-Watt University, United Kingdom</i> <ul style="list-style-type: none"><li>• Acoustic source localisation in environments in which a constraint is present.</li><li>• Source localisation via direct optimisation reducing computation six fold (SciPy).</li><li>• Signal sampling implementation in the spectrogram for compressed transmissions.</li><li>• Improved training of neural networks for acoustic source localisation (TensorFlow).</li><li>• Thesis: "Acoustic Source Localisation in Constrained Environments".</li><li>• Supervised by Keith Brown (<i>Heriot-Watt University</i>) and Kartic Subr (<i>University of Edinburgh</i>).</li><li>• Examiners: Abderrahim Halimi (<i>Heriot-Watt University</i>) and Keith Holland (<i>University of Southampton</i>).</li></ul> <b>M.Sc. Computer Vision and Robotics with Distinction</b> <i>Heriot-Watt University, United Kingdom</i> <ul style="list-style-type: none"><li>• Joint Erasmus Mundus Master Program with <i>University of Burgundy</i> (France), <i>University of Girona</i> (Spain) and <i>Heriot-Watt University</i> (United Kingdom).</li><li>• Basis of signal and image processing, medical image analysis (MATLAB).</li><li>• Image segmentation, multi-view geometry, object recognition and tracking (OpenCV).</li><li>• Robot autonomy and intelligence, including SLAM and motion planning (ROS).</li><li>• Thesis: "Texture Enhanced Tissue Analysis".</li><li>• Supervised by Dr. Keith Goatman from Toshiba Medical Visualization Systems.</li></ul>	Oct. 2015 - Sep. 2019 GPA: 76.6/100

	<b>B.Sc. Computer Science</b> <i>Universidad del Valle, Colombia</i>	Aug. 2006 - Aug. 2012 GPA: 4.67/5.0
	<ul style="list-style-type: none"> <li>• Courses in algorithms, data structures, compilers and software engineering.</li> <li>• Projects including image processing (C/C++), search algorithms, optimisation, evolutionary algorithms, software development (Java) and databases (MySQL).</li> <li>• Thesis: "Pruning Estimated Corresponding Points by Delaunay Triangulation".</li> <li>• Supervised by Dr. Maria Trujillo.</li> </ul>	
SELECTED PUBLICATIONS	<ul style="list-style-type: none"> <li>• <b>E. Vargas</b>, J. R. Hopgood, K. Brown, K. Subr, "A Compressed Encoding Scheme for Approximate TDOA Estimation", accepted to <i>European Signal Processing Conference</i>, (<b>EUSIPCO</b>), Rome, Italy, September 2018. (<b>Oral Presentation</b>)</li> <li>• <b>E. Vargas</b>, K. Brown, K. Subr, "Impact of Microphone Array Configurations on Robust Indirect 3D Acoustic Source Localization", in <i>International Conference on Acoustics, Speech and Signal Processing</i> (<b>ICASSP</b>), Calgary, Canada, April 2018. (<b>Oral Presentation</b>)</li> </ul>	
DISTINCTIONS	<b>James Watt Scholarship</b> , <i>Heriot-Watt University</i> Oct. 2015 Granted to 5 applicants for a Ph.D. position at the School of Engineering and Physical Sciences (EPS), awarding tuition fees and annual stipend to support studies for 3 years. <b>Erasmus Mundus Scholarship</b> , <i>European Commission</i> Sep. 2013 Granted to 4 European students for academic and professional achievement to study a Master in Computer Vision and Robotics (ViBot) during the academic year 2013-2015.	
TRAINING	<b>International Summer School on Deep Learning</b> Jul. 2018 Research training event aiming at updating participants about the most recent advances in the critical and fast developing area of deep learning. <b>International Computer Vision Summer School (ICVSS)</b> Jul. 2016 Provided an objective, clear, and in-depth summary of the state-of-the-art research in the areas of Computer Vision, Machine Learning and Artificial Intelligence.	
TECHNICAL SKILLS	<b>Operative Systems:</b> Windows, Linux (ubuntu) <b>Programming Languages:</b> Python, C/C++, Java <b>Frameworks:</b> Robotics Operating System (ROS) <b>Computer Vision:</b> OpenCV, Point Cloud Library (PCL) <b>Machine Learning:</b> WEKA, SciPy, Scikit-learn, TensorFlow <b>Software Tools:</b> MATLAB <b>Version Control:</b> Git/Github <b>Markup Languages:</b> L <sup>A</sup> T <sub>E</sub> X, B <sub>I</sub> B <sub>T</sub> E <sub>X</sub> , HTML, XML	
VOLUNTEER EXPERIENCE	<b>Edinburgh International Science Festival</b> , <i>Student Helper</i> 2017 - 2018 Helper at the " <i>Marty: Activate!</i> " workshop that taught children (11+ years) to program a robot to interact with its surroundings using the programming language <i>Scratch</i> . <b>FIRST LEGO League (FLL)</b> , <i>Robot Game Judge</i> 2016-2018 Assess teams of young people (9-16 years) while solving a set of missions on a specialised field, using an autonomous robot built and programmed using LEGO MINDSTORMS <b>Cracking the Code</b> , <i>Student Helper</i> Jun. 2017 Introduce girls (9-11 years) to programming a robot using LEGO MINDSTORMS, as part of a Equality Challenge Unit's (ECU) project oriented to attract under-represented groups into subjects they don't traditionally apply for.	