

# STEVEN VAN KUYK

*Curriculum Vitae - 2018*

## PERSONAL DETAILS

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Email: [steven.jvk@gmail.com](mailto:steven.jvk@gmail.com)  
Address: Wellington, New Zealand  
Date of Birth: 22/02/1993  
Website: <https://stevenvankuyk.com>



## WORK EXPERIENCE

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- 2017 – 2018      **Academic Peer-Reviewer**
- Reviewed academic manuscripts for IEEE Transactions on Audio, Speech, and Language Processing, and Acta Acustica United with Acustica.
- 09/2017 – 12/2017      **Apple Inc. (internship)**
- Developed a signal processing algorithm with the Apple CoreAudio group and implemented a prototype on a shipping Apple device.
- 2013 – 2016      **Victoria University of Wellington tutor (part time)**
- Prepared and facilitated weekly tutorials and laboratories.
  - Marked tests, assignments and lab reports.
- 11/2014 – 03/2015      **Fisher & Paykel Healthcare (internship)**
- Worked as an assistant product development engineer in a team of signal processing engineers.
  - Investigated the robustness of machine learning algorithms in order to specify hardware requirements for the company's latest medical device (a CPAP machine).
- 11/2013 – 03/2014      **Victoria Summer Research Scholarship with Spark NZ**
- Worked with Spark NZ and VUW on a research project titled "Multi-Cell User Selection with Joint Precoding".
  - Developed a mathematical model of a wireless communication system and investigated techniques to improve performance.
- 11/2012 – 03/2013      **Victoria Summer Research Scholarship**
- Worked on a project titled "Ultra-High Magnetic Field Gradients for NMR diffusion studies".
  - Developed computer-based models of Nuclear Magnetic Resonance systems allowing researchers to test designs before construction.

## EDUCATION

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### PhD in Engineering (2015-2018)

- I am a PhD candidate at Victoria University of Wellington. Aiming to finish in 9/2018.
- My research aims to model speech communication from an information theoretical perspective. Applications of my research include speech enhancement, intelligibility prediction, and a deeper understanding of human communication.

- Publications:

S. Van Kuyk; W. B. Kleijn; R. C. Hendriks; "An instrumental intelligibility metric based on information theory," in IEEE Signal Processing Letters, 2018

S. Van Kuyk; W. B. Kleijn; R. C. Hendriks; "An evaluation of intrusive instrumental intelligibility metrics," Accepted for publication in IEEE Transactions of Audio, Speech, and Language Processing, 2018

S. Van Kuyk; W. B. Kleijn; R. C. Hendriks; "On the information rate of speech communication," at ICASSP, 2017

S. Van Kuyk; W. B. Kleijn; R. C. Hendriks; "An intelligibility metric based on a simple model of speech communication," at IWAENC, 2016 (best paper award)

### **Bachelor of Engineering majoring in Electronic & Computer Systems (2011-2014)**

- Graduated with first class honours from Victoria University of Wellington.

Papers completed in 2014:	ECEN426 <i>Convex Optimization</i>	A+
	ECEN427 <i>Information Theory &amp; Communications</i>	A+
	ECEN415 <i>Advanced Control Systems Engineering</i>	A+
	ECEN410 <i>Advanced Communication Engineering</i>	A+
	ENGR489 <i>Engineering Honours Project</i>	A
	ECEN421 <i>Advanced Signal Processing</i>	A
	ECEN401 <i>Professional Practice</i>	A+
Papers completed in 2013:	ECEN310 <i>Communication Engineering</i>	A+
	ECEN315 <i>Control Systems Engineering</i>	A+
	ECEN320 <i>Introductory Signal Processing</i>	A+
	ECEN301 <i>Embedded Systems</i>	A+
	MATH324 <i>Coding &amp; Cryptography</i>	A+
	MATH251 <i>Linear Algebra</i>	A+
	ENGR302 <i>Group Project</i>	A+
	ENGR301 <i>Project Management</i>	A
Papers completed in 2012:	ECEN203 <i>Analogue Circuits &amp; Systems</i>	A+
	ECEN202 <i>Digital Electronics</i>	A+
	ECEN201 <i>Data Acquisition</i>	A+
	ECEN220 <i>Signals &amp; Systems</i>	A+
	NWEN241 <i>Network Applications</i>	A+
	MATH244 <i>Differential Equations</i>	A
	INFO241 <i>Database Management &amp; Programming</i>	A+
	QUAN102 <i>Statistics for Businesses</i>	A+
Papers completed in 2011:	ENGR101 <i>Engineering Technology</i>	A
	COMP102 <i>Computer Programming &amp; Design</i>	A+
	COMP103 <i>Data Structures &amp; Algorithms</i>	A+
	PHYS114 <i>1A -Mechanics, Fluid Dynamics, Waves, Quantum Physics</i>	B-
	PHYS115 <i>1B -Electromagnetism, Electronics, Optics, Thermodynamics</i>	B+
	MATH142 <i>Calculus</i>	A
	MATH151 <i>Algebra</i>	A+
	INFO101 <i>Foundations of Information Systems</i>	A+

### **Massive open online courses**

Machine Learning by Stanford University     *Logistic regression, neural networks, support vector machines, clustering algorithms, kernel methods.*

Hyperparameter tuning, regularization and optimization by deeplearning.ai *Neural networks, parameter initialization, regularization, drop-out, batch normalization, stochastic learning algorithms.*

## AWARDS, SCHOLARSHIPS, & GRANTS

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- Victoria Doctoral Submission Scholarship (2018)
- Faculty Strategic Research Grant (2017)
- Best paper award at the International Workshop on Acoustic Signal Enhancement (2016)
- Faculty Strategic Research Grant (2016)
- Victoria Doctoral Scholarship (2016)
- Victoria Masters by Thesis Scholarship (2015)
- Included on the Dean's List for academic excellence (2014)
- Included on the Dean's List for academic excellence (2013)
- Victoria Summer Research Scholarship (2013)
- Best Project Team – ENGR302 (2013)
- Victoria Excellence Scholarship (2013)
- Victoria Summer Research Scholarship (2012)
- Included on the Dean's List for academic excellence (2012)
- Included on the Dean's List for academic excellence (2011)
- Victoria Excellence Scholarship (2011)

## TECHNICAL SKILLS

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Area	Tools	Experience
Programming Languages	MATLAB	5000+ hours modelling communication and control systems, implementing speech processing algorithms, conducting signal processing and statistical analysis.
	C++	Self-taught C++ to fulfil the requirements of my internship at Apple Inc.
	TensorFlow	Self-taught. Two machine learning research projects
	Java	Two Java focused university courses. Received A+ in both courses. Recreational programming.
	Python	Self-taught Python to fulfil the requirements of my internship at Fisher & Paykel Healthcare.
	HTML + Javascript	12 week group project. Developed web content for the organisation WaiNZ.
Hardware	Microcontrollers	100+ hours programming microcontrollers. built an autonomous 'maze solving' robot and a DC motor PID control system.
	Circuit Design	100+ hours constructing analogue and digital circuits.

## ACTIVITIES & INTERESTS

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- Signal Processing
- Machine Learning
- Information Theory
- Reading
- Tramping, camping, and exploring
- Exercising

## PROFESSIONAL REFEREES

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**Professor  
Bastiaan Kleijn**

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