

Hamza BENNANI

Applied Mathematics &
Computer Science Engineer
PhD

Lecturer at University of Otago

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EMPLOYMENT HISTORY

FEB 2018- Feb 2019	Lecturer, Computer Science, University of Otago – Dunedin, New Zealand <ul style="list-style-type: none">• 3D statistical modelling of stone flakes• 3D reconstruction of iguana's Lung Ventilation• Lecturing Graphics paper (COSC342) (OpenGL), Effective Programming paper (COSC326), Object-Oriented Programming paper (COSC346) (User Interfaces) and Advanced Web Development paper (COSC212) (PHP).
APR 2017- Feb 2018	Assistant Research Fellow, Computer Science, University of Otago – Dunedin, New Zealand <ul style="list-style-type: none">• Stereo vision system to compute geometrical features of stone flakes for applications in archaeology• Automate the process of measuring some of the characteristics of stone flakes• 3D statistical modelling of stone flakes
JAN 2012- Jun 2017	Tutor/Demonstrator, University of Otago – Dunedin, New Zealand <ul style="list-style-type: none">• Computer Science• Toroa College, Studholme College• Disability Information and Support Services• Doctoral and Scholarships Office• Physiology
MAR 2017- JUL 2017	Research Assistant, School of PE, Sport and Exercise Sciences, University of Otago – Dunedin, New Zealand Signal processing
AUG 2016- SEP 2016	Assistant Research Fellow, Oral Sciences, University of Otago – Dunedin, New Zealand Signal processing: snoring detection in time domain, frequency domain and time frequency domain
2014 - 2016	Robocup Helper, Computer Science, University of Otago – Dunedin, New Zealand
SEP 2014- MAR 2015	Software Developer, Oral Sciences, University of Otago – Dunedin, New Zealand Shape analysis from mandibular radiographs
DEC 2013- FEB 2014	Statistical Analyst, Oral Sciences, University of Otago – Dunedin, New Zealand Perform numerical analysis and shape analysis on a data set
NOV 2012- APR 2013	Research Assistant, Geography, University of Otago – Dunedin, New Zealand Develop a GUI in MatLab for tide analysis
OCT 2012- DEC 2012	Numerical Analyst, Office of the Dean (Dentistry), University of Otago – Dunedin, New Zealand Carrying out analysis of research results
MAR 2012- MAY 2012	Marker, Computer Science, University Of Otago – Dunedin, New Zealand
DEC 2011- FEB 2012	Consultant - Software Development, Oral Sciences, University Of Otago – Dunedin, New Zealand <ul style="list-style-type: none">• Develop software for qualitative analysis in orthodontic research• Matlab code for EMG analysis for muscles activity
JUL 2010- JUL 2012	Freelancer, Auto-Consultant, Hamza BENNANI – Paris, France SIRET Id: 523 387 926 00018, Programming, computer vision, consulting, project manager

SEP 2009-
AUG 2010

Developer, Applied Mathematician, T-Systems International – Darmstadt, Germany

- Computer Vision: Image processing, Image Recognition, Project: “barcode scanner”
- Artificial Intelligence: genetic algorithm, heuristic method
- Creation of an User Interface for Android
- Character Recognition
- API for “Real” on Android

MAR 2008-
JUL 2009

Technician for a profiling platform, ENSEEIHT/Sopra Group – Toulouse, France

- Dynamic Web Programming
- Data Mining, Profiling web users

EDUCATION

JUN 2011-
Jan 2017

University Of Otago, Dunedin, New Zealand

PhD Thesis: “Three Dimensional Reconstruction of Human Lumbar Spine from Bi-planar Radiographs” | Advisors: Prof. Brendan MCCANE & Prof. Geoff WYVILL
(had two deferrals of eight months)

Evaluation of a method for creating 3D models of vertebrae that is applicable to other free-form shapes;

Landmark free ASMs of lumbar vertebrae;

Definition and evaluation of a process for estimating the shape and position of vertebrae from uncalibrated bi-planar radiographs.

Finished in Jan, Awarded in Oct and Graduated in Dec 2017

OCT 2010-
MAR 2011

Goethe Universität Frankfurt, Frankfurt, Germany

One Semester in Physics Department, Master in Neuroscience (withdrew to pursue PhD)

SEP 2009-
AUG 2010

Technische Universität Darmstadt, Darmstadt, Germany

Specialty human computer system: computer vision, machine learning, image processing

Computer Science: c/s technology, web services, rich internet applications

SEP 2007-

ENSEEIHT, Toulouse, France (top-level French engineering school, National Polytechnic Institute of Engineering in Electrotechnology, Electronics, Computer Science, Hydraulics and Telecommunications)

AUG 2009

Part of the applied mathematics and computer science department

Optimal control, modelling, ODE, PDE, Krylov solvers, numerical solving

PUBLICATIONS

9. Photogrammetric Debitage Analysis: Measuring Māori Toolmaking Evidence.
Bennani H, Mills S, Walter R, Greig K. (Dec 2017) IVCNZ.
DOI: 10.1109/IVCNZ.2017.8402463
8. Three Dimensional Reconstruction of Human Lumbar Spine from Bi-planar Radiographs.
H Bennani. (Oct 2017) (Thesis, Doctor of Philosophy) University of Otago.
<http://hdl.handle.net/10523/7631>
7. Morphometric growth changes of the nasopharyngeal space in subjects with different vertical craniofacial features.
Park JE, Gray S, Bennani H, Antoun JS, Farella M. (Sep 2016) Am J Orthod Dentofacial Orthop. 150(3):451-548
DOI: 10.1016/j.ajodo.2016.02.021
6. Three Dimensional (3D) Lumbar Vertebrae Data Set.
Bennani H, McCane B, Cornwall J. (Aug 2016) Data Science Journal. 15(9):1-15
DOI: 10.5334/dsj-2016-0098
5. 3D Reconstruction From Bi-Planar X-Rays.
Bennani H, McCane B. (Jul 2016) The Dodd-Walls Centre for Photonic and Quantum Technologies Symposium Queenstown - New Zealand
4. Validity of the CVM method to determine mandibular length Response.
Gray S, Bennani H, Farella M. (Jul 2016) Am J Orthod Dentofacial Orthop. 150(1):7-8
DOI: 10.1016/j.ajodo.2016.04.013
3. Morphometric analysis of cervical vertebrae in relation to mandibular growth.
Gray S, Bennani H, Kieser JA, Farella M. (Jan 2016) Am J Orthod Dentofacial Orthop. 149(1):92-98
DOI: 10.1016/j.ajodo.2015.06.028
2. Neck and shoulder muscle activity of orthodontists in natural environments.
McNee C, Kieser JK, Antoun JS, Bennani H, Gallo LM, Farella M. (Jun 2013) J Electromyogr Kinesiol. 23(3):600-607.
DOI: 10.1016/j.jelekin.2013.01.011
1. Computer modelling of vertebral body shape.
Bennani H, Cornwall J, McCane B. (Apr 2013). Clinical Anatomy. 26: 641-660
DOI: 10.1002/ca.22235

SCHOLARSHIPS AND AWARDS

JUN 2016	Award for the second best poster at The Dodd-Walls Centre Symposium, Queenstown, New Zealand
JAN 2016	Summer School Teaching Excellence Awards, Best Tutor/Demonstrator, Otago University Students Association, Dunedin, New Zealand
Student Feedbacks:	<p>“He had an uncanny ability to gauge people’s level when it came to understanding and writing code and would vary his degree of help accordingly. For students that were new to code he would have the patience to explain step by step until you understood the code you were writing. If students who have coded before had problems, he would come around and point at areas where they should check again, letting them work out their own bugs. For times when the same question were asked (he also had a good memory for who asked what questions throughout the semester), he would show you how to use the resources around you, be it online or in the lecture notes, to work out your own questions. If that did not work, he would again sit down and go through your code until you understood what it does. In short, he not only helped teach how to code but also how to be a self-efficient and independent.”</p> <p>“He’s a really good demonstrator who is very helpful, but not overly helpful. I like how he points or hints to what is wrong in your code but actually gets you to fix it. He’s also pretty funny and easy to talk to.”</p> <p>“Being hilarious.”</p> <p>“The best thing about the course is: Hamza.”</p> <p>“Hamza is great.”</p> <p>“Hamza is insanely knowledgeable and good at teaching.”</p> <p>“Hamza makes this fun.”</p>
JUL 2016	Departmental Award Stipend
JUN 2016	Grant from Russell Education Trust (JAN 2015 and JAN 2014)
JUN 2011	Scholarship for PhD at University of Otago for three years

FOREIGN LANGUAGES

FRENCH:	Bilingual (DALF: Diplôme Approfondi en Langue Française)
ENGLISH:	Fluent, TOEIC (2009, score: 910), IELTS (2011, score: 7)
GERMAN:	Intermediate knowledge, one year and a half living in Germany, working and studying
JAPANESE, SPANISH:	Beginner
ARABIC:	Native speaker

IT SKILLS

Specialty:	Graphics, Vision 3D Modelling
Programming Skills:	PYTHON, JAVA, C/C++, ASSEMBLY, notions in SYMBIAN (7months in a project), notions in ANDROID (5 months of development, \LaTeX)
Scientific Calculus:	MATLAB/SIMULING, Fortran 77/90, Maple
Applied Maths:	ODE, PDE, Optimal Control, Geometrical Approximation, Computer Vision
Web Technology:	Java/J2ee (servlets, JSP, EJB), HTML/CSS, PHP
Data Base:	SQL, PL/SQL, Access
Operating Systems:	Windows, Mac, Unix and Linux Systems
Software skills:	Eclipse, CarbideC++, DevC++, NetBeans, Windev, PhotoFiltre, EasyPHP, MS Visual Studio 2010, MS Office, Osirix, PhotoScan

PERSONAL BACKGROUND

Hobbies:	Travelling: Morocco, Spain, France, Germany, Turkey, UAE, HK, Malaysia, Australia, Ethiopia and New Zealand Juggling, collecting old banknotes from different countries, chess Between 2007 and 2009: supervision and initiation to circus games for children in primary school Web Sites : http://www.hamzabennani.com , http://www.konig.co.nz and Internal Management System for Meat Processing, König Gourmet Foods Ltd, Green Island, Dunedin, New Zealand
Community life:	President of AMGE-Toulouse in 2009 (Moroccan students association) and in charge of social activities in 2008 Participation in several events in my engineering school: organisation of conferences, projections, business/school meetings, and engineers/students meetings Participation in Middle East Simulation project as member of the 2010 organising team and as webmaster Webmaster of graphics lab website (2011, 2012) Sponsorship chair of NZCSRSC 2012. Helper, Sciences Divisional Office, University Of Otago – Dunedin, New Zealand (Jan - 2012 - 2013 - 2014 - 2015 - 2016 - 2017)