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| **Nat Lund**  ***Curriculum Vitae***  Nathaniel J. Lund  British Citizen and New Zealand Citizen |  |

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|  | **EDUCATION** |
| 2014 | **PhD in Theoretical Physics** |
|  | Victoria University of Wellington, New Zealand |
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| 2007 | **BSc Honours (First Class) in Physics** |
|  | Victoria University of Wellington, New Zealand |
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| 2005 | **BSc in Mathematics and Physics** |
|  | Victoria University of Wellington, New Zealand |
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|  | **DOCTORAL THESIS** |
| Title | **Effective Slip Lengths for Stokes Flow over Rough, Mixed-Slip Surfaces** |
| Supervisor | Professor Shaun Hendy |
| Description | The motivation was the recent development of surfaces patterned on the nano scale that offer reduced drag to liquids flowing over them. The physics was modelled as incompressible Stokes flow with a rough, periodic boundary condition. Approximate analytic solutions were obtained by the perturbation method and the homogenization method, yielding a prediction of the improved flow of liquids over nano-patterned surfaces. |
| Examiner’s Remark | “This [introductory] chapter describes fairly standard fluid mechanics concepts but with a **depth and clarity which is very rarely found even in classical fluid mechanics textbooks.** It is an absolute pleasure to read even if this chapter contains very little new/original results. The candidate does a very good job of explaining complex concepts with clear and concise arguments.” |
| Off-Topic Project | I was required to do a small project on a technical subject outside of my primary research topic. To gain some insight into the global financial crisis, I studied **fractional-reserve banking** and reviewed Nassim Taleb’s ‘**Black Swan’**. |
| Other Work | Outside of my own PhD work, I volunteered my services on a complex systems project. I learnt Python, taught it to other students, and wrote scripts to **extract data** from a **million-line** text file and create network graphs from the data. |
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|  | **COMPUTER SKILLS** |
| Intermediate | Python, Latex (for mathematical typesetting) |
| Basic | Django web framework, various Python scientific libraries, Linux, SQL |

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|  | **COMMUNCATION SKILLS** |
| Written | **Technical Writing:** PhD thesis (35,000 words with 2,000 equations) noted for outstanding depth and clarity. |
| Oral | **Presentations:** About a dozen 10 – 15 minute talks given during graduate study. |

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|  | **EXPERIENCE** |
|  | **Vocational** |
| 2014 - 2015 | **Data Scientist,** PUBLONS, Wellington, New Zealand. www.publons.com |
|  | Worked in a small but rapidly-growing internet startup developing a web service for academics, using the Python web framework Django. Main projects included data cleanup, name disambiguation, text matching, search, and statistics. Additional work included basic web programming, user interface design, planning and strategizing, relating with various stakeholders. |
|  | Details:   * Investigated raw data, and wrote heuristic code to sanitize it automatically. * Researched string matching algorithms, and implemented a modified version that gave best results for matching names. * Built a prototype search engine from basic language processing and linear algebra components. (It was later replaced with the industry-standard Lucene search engine, which is mathematically equivalent.) * Generated summary statistics of key company data, with careful attention to graphical presentations that enabled the quickest and deepest comprehension. * Developed a rating system designed to allow meaningful comparison of published academic articles. |
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|  | **Tutoring** |
| 2007 - 2012 | During my PhD, I provided assistance to various fellow PhD students, often with Python, and in particular to a Polynesian maths graduate who was not familiar with the physics component of his topic. |
| 2006 | Tutored first-year mathematics in a small group setting. |
| 2005 - 2006 | One-on-one mathematics tutoring of a student with Asperger’s syndrome. |
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|  | **Legal Blindness** |
| 1995 - 2007 | I was legally blind for approximately 12 years. At the beginning of my PhD, I began the process of corneal transplant surgeries and rehabilitation, which took several years. The process was a great success - I can now legally drive. |
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|  | **INTERESTS** |
|  | * Economics Guitar * Philosophy of Science Music from Bluegrass to Heavy Metal * Data Science Food Science |