Dr. Gavin Mendel-Gleason

Chief Technology Officer

Employment

2018 – 2021 **CTO**, *TerminusDB*, Dublin.

- Chief Technology Officer at TerminusDB.
- Responsible for technical architecture of TerminusDB and TerminusX (managed cloud offering).
- Manager for TerminusDB development team.

2015 – 2018 **Research Fellow**, *Trinity College Dublin*, Dublin.

- Co-lead of development with Kevin Feeney on the Dacura project, a semantic web ontology driven platform for data-storage and data-entry.
- Developed algorithms and tools for proving properties of RDF graphs based on OWL ontology information.
- Launched the Seshat Global Historical Databank (http://dacura.scss.tcd.ie/seshat/index.html) using Dacura technology.

2012 – 2015 **Postdoctoral Researcher**, *Dublin City University*, Dublin.

- A post-doctoral position with a team of four developers including the principle investigator (Deirdre Hogan).
- Lead developer for the QuAS question answering software. This project developed an information retrieval based question answering system which leveraged customer support interactions. It is a cloud based project with a web and mobile interface.
- Lead developer for the Atabot project, a platform for using machine learning techniques to recognise and classify user generated content.

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2005 – 2007 **Lead Software Engineer**, *Cognotent Ltd.*, Dublin.

- Lead developer for irishpressreleases.ie, a CMS for press releases from companies or their PR firms. I wrote a probabilistic parser for automatic data entry. The implementation of the probabilistic parser was written in Common Lisp.
- Lead developer for irishblogs.ie. I implemented vector based similarity measures between blog posts using a modified k-means and a longest common sub-sequence algorithm based on Patricia tries to extract news story titles. I architected the treatment of time evolved clustring of news stories.
- All of the research, mathematical development, architecture and much of the implementation was done by myself.

2004 – 2005 **Chief Technology Officer**, *Aeroglyph Inc.*, Marion, Montana.

- I worked primarily as an architect and programmer of a logic database system with a semantics similar to a persistent Prolog utilising a triple-store. Elements of our design included a novel mechanism similar to tabling (as used by David Warren in XSB) using continuations, unfold/fold query optimisation, and a novel indexing data structure for persistently storing triples.
- I wrote most of the low level programming (memory pager and inner loops) in C.
- We successfully completed the development cycle and delivered one server to a client who is currently using it for storing pathology information (tens of thousands of records). Unfortunately funding ran out and the project was discontinued.

2003 – 2004 **Lecturer**, *Carnegie Mellon University*, Pittsburgh, Pennsylvania.

- Lecturer and teaching assistant. I was responsible for teaching the problem sessions for engineering physics.

2003 **Research Assistant**, *University of New Mexico*, Albuquerque, New Mexico.

- Developed finite difference codes for simulation of complex nonlinear differential equations for application in biological physics. Code was written in MatLab and Lisp.

2000-2002 **Software Engineer**, *MDLi*, San Francisco, California.

- Helped write and maintain combinatorial chemistry informatics software for the leading reaction based software product, Afferent.
- I participated in development through the end of one release cycle (3.0) and entire release cycle (3.1, a major release) and the beginning of a third (4.0) before the project was canceled due to changes in management. At this point I returned to school to complete my degree.
- In charge of automation (robotics) and bug-fixes in the reaction based chemistry engine on Afferent 3.0.
- In 3.1 I substantially re-factored the searching mechanism (object-relational mapping) to be thread safe for performance reasons. I designed and implemented the object serialization system for a very complex object system written in CLOS on Afferent 4.0.

References

Ireland

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Dr. Deirdre Hogan
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United States

Dr. Randy Gobbel
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Personal Experience

- Expert in many programming languages including C, C++, Java, Php, Lisp, Haskell, OCaML, Prolog, SQL
- Expert knowledge of semantic web foundations including semantics of RDF and OWL
- Experience in model driven approaches to development
- Extensive knowledge of logic, mathematics, statistics and statistical methods
- I have used machine learning techniques for text classification and clustering
- Implementation experience with program transformation and optimisation techniques for functional, logcial and relational languages
- Experience working with several proof assistants, including Coq and Agda
- I have worked with "big data" in an information retrieval, machine learning and data mining setting
- Experience using and customising the Xapian and Lucene search engines

Education

2007 – 2011 **PhD Computer Science**, *Dublin City University*, Dublin.
In 2007 I began a funded PhD program at Dublin City University in the School of Computing. My thesis title is "Types and Inhabitation of Infinite State Systems". As part of my PhD I developed a supercompiler written in Haskell and mechanised proofs of correctness in the proof assistant Coq.

1999 – 2004 **BS Pure Math, BS Physics**, *University of New Mexico*, Albuquerque, New Mexico.
Graduated Magna Cum Laude with a Bachelor of Science in Pure Math, and a Bachelor of Science in Physics. My GPA was 3.70. I was given the "Feynman Award" for excellent academic achievement in modern physics, and was awarded the title of "Best Student in Pure Math" by the Math Dept.

References

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Kevin Chekov Feeney, Gavin Mendel Gleason, and Rob Brennan. Linked data schemata: fixing unsound foundations. *Semantic Web Journal*, 2017.

Geoff Hamilton and Gavin Mendel-Gleason. A graph-based definition of distillation. *International Workshop on Metacomputation in Russia*, 2010.

Gavin Mendel-Gleason, Rob Brennan, and Kevin Feeney. Ontology consistency and instance checking for real world linked data. 2016.

Gavin Mendel-Gleason and Geoff Hamilton. Inhabitation of (co)-inductive types using transition systems, workshop on partiality and recursion in interactive theorem provers. *Second International Workshop on Metacomputation in Russia*, 2010.

Gavin Mendel-Gleason and Geoff Hamilton. Supercompilation and normalisation by evaluation. *Second International Workshop on Metacomputation in Russia*, 2010.

Gavin Mendel-Gleason and G.W. Hamilton. Development of the productive forces. *International Valentin Turchin Workshop on Metacomputation*, 2012.