

Dominic Widdows

Contacts and Basic Work Information

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Citizenship: USA, UK

Work History

Microsoft Bing. Senior Software Engineer. 2012-2013, then 2014-present
Software engineering (C#, Cosmos/Scope), project leadership, research and design.
Bing Local Search content. Built and deployed distributed systems for web information extraction and local entity record linkage throughout many countries.

Serendipity Analytics. Director of Language Engineering. May-Nov 2013
Design, implement, and integrate features for natural language interface to structured databases for cloud-based business intelligence product. (Startup that ran out of money; subsidiary of GCE.)

Google Pittsburgh. Software Engineer. 2007-2011
Software engineering (C++, Java, Python), research, design and key leadership roles.
Wrote first routing engine for Google Shopping Express. Designed international schema, built merchant feedback tools, and web information extraction systems for Google Product Search.
Part of team that created Google Sky Map, “augmented reality” app for Android.
Worked regularly with Legal, PR, UX, Ops, and other powers-that-be to see work launched.

MAYA Design. Senior Research Engineer. 2004-2007
Research engineering (Python, Java, Php), consultancy, project management.
Projects including large deployments with businesses, government, universities, and the military.

Stanford University. Senior Researcher. 2001-2004
Research engineering (C, Perl), project management, graduate teaching, supervising interns.
Worked on natural language processing, many successful papers and software launches.

Shell Petroleum (North Sea Exploration), Summer Intern 1995
Designed and won approval for innovative solvent-based treatment for blocked oilwell, accessing \$6M oil reserves, reducing costs from ~\$2M to ~200K compared to normal milling treatment.

Education

Oxford University. DPhil in Differential Geometry. 1996-2000
Thesis and journal papers in Quaternion Algebraic Geometry, full college and UK scholarships.

Durham University. BA in Mathematics, First Class (US equivalent 4.0 GPA). 1993-1996

Software Engineering Skills

End-to-end software cycle including design, prototype, production, testing, package deployment, UI, monitoring. Domain-specific expertise in information retrieval, information extraction, machine learning, e-commerce, geo / local (and celestial - see below!)

Main Programming Languages: C++, Java, C#, Python.

Other Familiar Languages: C, Perl, Php, Bash, XML/HTML, Scope/SQL, LaTeX.

Operating Systems: Linux (mainly Ubuntu and CentOS), Windows, Mac, Android.

Distributed Systems: Google platform (MapReduce etc.), Microsoft Cosmos, Hadoop HBase.

Build and Deployment: GNU Make, MSBuild, Ant, Maven, Python distutils, etc.

Sample Domains of Expertise

Commerce	Product codes (EAN, UPC, ISBN), redesigned Google product spec. Service / activity codes (SICS, NAICS). Routing and delivery, information extraction.
Local / Geo	Address formats, geocoding, region codes, GIS algorithms. Information extraction, record linkage.
Biomedical	UMLS, MedLine, SemRep, ontology learning.
Linguistic	WordNet, Apache Parser, Python NLTK, Semantic Vectors.

Public Scientific Contributions

Papers and Conferences (<http://www.puttypeg.net/papers/>)

Over 50 refereed journal and conference papers in computational linguistics, mathematics, information extraction, biomedical informatics, distributed systems, artificial intelligence.

Keynote appearances at ICTIR conference and DisCO ACL workshop.

Long-time conference organizer and steering committee member for Quantum Interaction.

SemanticVectors (<https://github.com/semanticvectors/semanticvectors>)

Lead developer, responsible for design, coding, integrating and testing diverse contributions, distribution, user support for open source automatic semantic modeling package. Over 20K downloads. Distributional semantic analysis using random projection. Grown to support reflective indexing, singular value decomposition (latent semantic analysis), ontological relation indexing and extraction, clustering and visualization, orthographic similarity (e.g., for spelling correction), infrastructure layer supporting machine learning and search with real, complex and binary vectors.

Google Sky Map (<http://www.google.com/mobile/skymap/>)

Mobile sensor-based planetarium app for Android smartphones. Over 30M downloads. Now Open Source.

First “augmented reality” astronomy app, similar apps now available on all major mobile platforms.

One of team of 6 volunteers, contributed to geometric transformations, star data, time travel, search.