

## Nema Dean

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### Education

#### **Ph.D. in Statistics**

University of Washington, Seattle, WA, USA. June 2006

*Thesis title:* Variable Selection and Other Extensions of the Mixture Model Clustering Framework

*Advisor:* Professor Adrian Raftery

*Committee Members:* Werner Stuetzle, Matthew Stephens.

#### **B.A. (First Class Hons.) in Mathematics**

Trinity College Dublin, Ireland. June 2002.

Awarded Gold Medal for Academic Excellence.

#### **Postgraduate Certificate in Academic Practice**

University of Glasgow, Scotland. September 2008.

### Experience

University of Glasgow Glasgow, Scotland

Department of Statistics

#### **Lecturer**

September 2006 - present

Ongoing research into extending mixture model and non-parametric methodologies for clustering and visualization.

University of Washington

Seattle, WA, USA

Department of Statistics

#### **Research Assistant**

September 2002 - August 2006

Professor Adrian Raftery. Worked with research faculty of the Statistics department and the Psychology and Microbiology departments to develop and implement statistical methodology and software for model-based clustering and variable selection methods.

Trinity College Dublin

Dublin, Ireland

Department of Statistics

#### **Research Assistant**

Summer 2002

Dr. Brendan Murphy. Worked to develop a general model-based discriminant analysis technique that allowed the incorporation of unclassified data in the estimation algorithm.

### Teaching

University of Glasgow

Glasgow, Scotland

Statistics Lecturer

September 2006 - present

Undergraduate lecturing: Statistics 1Z, 3H Analysis of Data, Science Fundamentals.

Post-graduate lecturing: Statistical Computing (Fall 2006)

University of Washington

Seattle, WA, USA

Temporary Statistics Lecturer

Summer 2006

Undergraduate lecturing: Statistics 220.

### Articles Published in Peer-Reviewed Journals/Proceedings

N. Dean and A. E. Raftery (2005). Normal Uniform mixture Differential Gene Expression Detection for cDNA Microarrays, *BMC Bioinformatics* 6, 173.

A. E. Raftery and N. Dean (2006). Variable Selection for Model-Based Clustering, *Journal of the American Statistical Association* 101(473), 168–178.

N. Dean, T. B. Murphy and G. Downey (2006). Using Unlabelled Data to Update Classification Rules with Applications In Food Authenticity Studies, *Journal of the Royal Statistical Society, Series C - Applied Statistics*, 55(1), 1–14.

E. Ayers, R. Nugent and N. Dean (2008). Skill Set Profile Clustering Based on Weighted Student Responses, *Educational Data Mining 2008: 1st International Conference on Educational Data Mining, Proceedings*, R. S. J. d. Baker, T. Barnes and J. E. Beck (Eds.), 210–217

### Working Papers

E. Ayers, R. Nugent and N. Dean. Conditional Subspace Clustering with Skill Mastery Information, submitted to AISTAT November 2008.

T. B. Murphy, N. Dean and A. E. Raftery. Variable Selection and Updating in Model-Based Discriminant Analysis for High-Dimensional Data. University of Washington Statistics Department Technical Report no. 536

N. Dean and A. E. Raftery. Latent Class Analysis Variable Selection, submitted to the Annals of the Institute of Statistical Mathematics July 2008. University of Glasgow Statistics Department Technical Report version

R. Nugent and N. Dean. A Minimum-Density Linkage Method to Visualize High-Dimensional Density Estimates and their Hierarchical Cluster Structure. In preparation.

N. Dean and R. Nugent. Mixture Model Component Trees: Visualizing the Hierarchical Structure of Complex Groups. In preparation.

### Scientific Software

N. Dean and A. E. Raftery, `nudge`, R package for Normal Uniform Differential Gene Expression detection, submitted to Bioconductor, 2005  
<http://students.washington.edu/nemad/software.shtml>.

N. Dean and A. E. Raftery, `clustvarsel`, R package for variable selection for model-based clustering, submitted to R project site, 2005  
<http://students.washington.edu/nemad/software.shtml>.

### Selected Awards

- Royal Society of Edinburgh International Exchange Grant (2008).
- Royal Society Travel Grant for 56th Session of the International Statistics Institute Meeting (2007).
- Overall Prize Winner in the Poster Competition at RSS Annual Conference in Belfast (2006).
- First place in the student paper competition at the Western North American Region of the International Biometric Society (WNAIR/IMS) meeting in Fairbanks, AK, June 2005.
- National Science Foundation program, Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE) travel award for Interface/CSNA (Classification Society of North America) conference, St Louis, MO, June 2005.
- Graduate School Fund for Excellence and Innovation (GSFEI) Graduate Student Travel Award for WNAIR/IMS conference, Fairbanks, AK, June 2005.

### **Selected Presentations**

N. Dean, *Mixture Model Component Trees: Visualizing the Hierarchical Structure of Complex Groups*. Seminar at School of Mathematical Sciences in University College Dublin, Ireland. 16th October 2008.

N. Dean, *Density-Based Linkage Methods for Visualizing Model-Based Clustering Results via Component Trees*. Seminar at School of Mathematics and Statistics in the University of St. Andrews, Scotland. 6th October 2008.

N. Dean, *Invited Talk in the guest session of the British Classification Society*. 32nd Annual Conference of the German Classification Society, Hamburg, Germany. 16th - 18th July 2008

N. Dean, *Invited Talk*. Classification Society of North America Conference, St. Louis, Missouri, USA. 5th - 7th June 2008.

N. Dean, *Variable Selection for the Mixture Model Clustering Framework*. Seminar at Carnegie Mellon University, Department of Statistics, Pittsburgh, PA, USA. 17th September 2007.

N. Dean, *Variable Selection for Clustering*. Invited (Long) Talk at the Working Group on Model-Based Clustering, Dublin, Ireland. 16th July 2007 N. Dean,

### **Journals Refereed for**

- Biometrics
- Psychometrika
- Biometrika
- JABES
- Statistics and Computing
- Computational Statistics and Data Analysis
- Journal of the American Statistical Association
- BMC Bioinformatics