Overview
Tim Graettinger is the founder and President of Discovery Corps, Inc. He is an experienced individual with an exceptional track record of innovation, creativity, and quality. He oversees all aspects of company operation, from sales and marketing to client training and consulting services. Tim also provides leadership and technical direction for the company.

Prior Experience
Director of Analytics, MindBase – Yankelovich, Inc: Tim led all analytic activities within the MindBase division, from consulting engagements with Fortune 100 clients to product development. He also developed novel segmentation schemes based on consumer attitudes and motivations.

Director of Research – Institute for Software Research: Dr. Graettinger directed all aspects of research for this government-funded institute. Initiatives for NASA included the development of neural-network-based adaptive flight control, breakthrough propulsion physics, and the study of software team dynamics.

Asst. Vice President/Sr. Scientist - Analytika, Inc.: He managed and provided data mining consulting services for Fortune 500 health care and pharmaceutical clients, from account management to execution. Tim's additional responsibilities included developing core data mining technology and software tools.

Vice President of Product Development - NeuralWare, Inc.: Dr. Graettinger developed the strategic technical direction of the company and promoted the company in the marketplace. He managed all products, including NeuralWorks Professional II, DataSculptor, DANA, and NeuCOP (the Neural Control and Optimization Program). Tim led all internal research and development activities, client consulting engagements, and training.

Patents
Multimodal Neuromonitoring System (US Provisional Patent No. 60/544888) - This system provides a neurosurgeon with clinically relevant measures of brain function in real time.

Computer-Based Neural Network System and Method for Medical Diagnosis and Interpretation (US Patent No. 5839438) – This algorithm is a novel technique for explaining the results of a neural network embedded in an ultrasound breast examination system.

Control System Using an Adaptive Neural Network for Target and Path Optimization for a Multivariable, Nonlinear Process (US Patent Nos. 5477444 and 5640491) - Developed in a collaboration between NeuralWare and Texaco, NeuCOP is a state-of-the-art, adaptive, optimal controller for the oil, gas, and chemical industries.

Education
Ph.D., Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.
M.Sc., Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.
B.Sc., Engineering Science, Iowa State University, Ames, IA.

Representative Business Engagements
Direct Marketing – Partnering with a consumer data compiler, Discovery Corps, Inc. (DCI) has produced many response models to identify the best prospects for investment-oriented publications. These models are being utilized successfully by more than a dozen well-known magazines, newspapers, and newsletters. In addition, these same prospecting models have tested effectively on expires (former subscribers) to identify the best candidates for re-activation.

Non-Profit Income Development Programs - For one of the nation's largest non-profit organizations, Tim and the Discovery Corps team produced a variety of neural network/decision tree hybrid models. These models are being utilized successfully by the organization across all income development activities, from the core direct mail program, to major gifts, to legacy and planned gifts, and even to fund-raising for political advocacy.

Risk Assessment – For a major re-insurance company, DCI developed a behavior-based risk model for use in commercial and residential property underwriting. The model's risk ratings created discrimination in actual fire rates of a factor of 10 between the highest-risk and lowest risk groups. Previously, the re-insurer made no compensation for these behavior-based risks, rating properties almost solely on the basis of the structure type.

Site Location Selection and Auditing – For a large non-profit organization, Tim led the Discovery Corps team that developed models to predict the performance of current and future site locations. The ability to quantitatively analyze and select from among numerous candidate sites has a huge financial impact, particularly for eliminating poor candidates that can cost tens of millions of dollars to construct. For existing sites, the model provides a benchmark for assessing performance and identifying opportunities for improvement.

Drug Discovery - For a biotech company, DCI modeled the combined effects of base compounds, reagents, and solvents on the bioactivity of the resulting product compounds. The work improved the "hit rate" for finding bioactive compounds by a factor of 50 to 1. The model reduces significantly the need for expensive synthesis of compounds that are unlikely to be useful pharmaceuticals.

Representative Industrial/Scientific Engagements

Petroleum Refinery Control – Dr. Graettinger worked with a Texaco engineering team to install the first permanent NeuCOP Controller at the Star Enterprise Plant in Convent, Louisiana. The neural network process model predicts changes in the process over time while the optimization engine steers the process to an economic optimum – all in real time. The neural network also automatically adapts over time to changes in the process operating parameters.

Intelligent Flight Control – Tim led the team developing and installing the first neural-network-based adaptive flight control system to be tested in flight. The SAVE program was conducted in cooperation with NASA and Boeing at the NASA Dryden facility at Edwards Air Force Base. This effort included the development of the adaptive algorithms, the building and testing of a special-purpose flight computer, and software verification and validation.

Polymer Defect Identification - For a major chemical company, Tim developed neural network models to predict the frequency of defects in a polymer product. The client used the models to determine which process variables had the largest effects on the defect rate.

Grain Classification - A manufacturer of grain processing equipment engaged Dr. Graettinger to prototype a neural network-based, optical grain classifier. The classifier was developed and tested off-line initially. Confident of the classifier's performance, the team implemented it in hardware to meet the speed requirements of the on-line application. This machine is the only one of its type on the market today since it is the only one accurate enough to receive international certification.

Multi-modality Neural Sensing - For a startup company, a DCI team designed a neuromonitoring system that provides a neurosurgeon with clinically relevant measures of brain function in real time. The system is currently undergoing field tests prior to receiving FDA certification.

Training/Teaching

Data Mining Level 1 - Tim developed and leads the very successful seminar, "Data Mining Level 1" currently offered by Discovery Corps, Inc

Model1 Fast Start – For Group1 Software, Dr. Graettinger developed and delivered on-site training for the Model 1 data-mining product.

Neural Networks for Business, Industry, and Government – Tim taught NeuralWare's highly regarded, "Neural Networks for Business, Industry, and Government" training course over a period of three years.

Neural Networks for Process Control - He was the instructor and developer of NeuralWare's specialty course, "Neural Networks for Process Control."

For major clients, including John Deere, Prudential, Deloitte and Touche, Citibank POS, Texaco, DuPont, General Electric, Monsanto, FingerHut, American Association of Railroads, Los Alamos National Labs, and James River Corporation, Dr. Graettinger has conducted training courses on site.

Tim has lectured at several prominent universities, including Carnegie Mellon University, the University of North Carolina, the University of Pittsburgh, and the State University of New York.

Representative Publications

"Corporate Folklore – Using Data Mining for a Reality Check", Tim Graettinger and Bill Lazarus, TEQ Magazine, March, 2008 (to appear).

"An Executive's Guide - Digging up $$$$s with Data Mining," Tim Graettinger, The Data Administration Newsletter, September 1, 1999.

"Adaptive Control with NeuCOP, the Neural Control and Optimization Package," T.J. Graettinger, N.V. Bhat, and J.S. Buck, Proceedings of the IEEE International Conference on Neural Networks, Orlando, FL, 1994.

"Model Predictive Control Using Neural Networks," Timothy J. Graettinger, Naveen V. Bhat, Kent Heckendorn, and Jeffrey S. Buck, AIChE Spring National Meeting, Atlanta, GA, 1994.

"Neural Control for Hydrocarbon Processing," Tim Graettinger and Jeff Buck, World Congress on Neural Networks, San Diego, CA, 1994.

"Neural Networks and TQM/SA: Breakthrough Technology Made Easy," Peter Knepell and Tim Graettinger, AQC 48th Annual Quality Congress, 1994.

"On the Computation of Reference Signal Constraints for Guaranteed Tracking Performance," T.J. Graettinger and B.H. Krogh, Automatica, 1992.

"Neural Networks for Bankruptcy Prediction: The Power to Solve Financial Problems," K.G. Coleman, T.J. Graettinger, and W.F. Lawrence, AI Review, July-August, 1991.

"Evaluation and Time-Scaling of Trajectories for Wheeled Mobile Robots," T.J. Graettinger and B.H. Krogh, in Autonomous Mobile Robots, Iyengar, S. and Elfes, A., eds., IEEE Computer Society Press, 1991.

"The Acceleration Radius: A Global Performance Measure for Robotic Manipulators," T.J. Graettinger and B.H. Krogh, IEEE J. of Robotics and Automation, Feb. 1988.