

# Computational Intelligence in Direct Support of Patient Care

## Organizers

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## Brief Description

This session is intended to provide a forum for biomedical researchers, computer scientists and information technologists to present their recent research, development, implementation, and experience with Computational Intelligence techniques such as neural networks, evolutionary programming, fuzzy logic, artificial intelligence, statistics, ensembling, etc. related to direct support of patient care in four broad areas, namely, (1) designing and conducting clinical research trials, (2) designing and using clinical data repositories, (3) data visualization, understanding and mining with numeric, categorical, text, signal and image data, and (4) medical devices. Papers that show how the application of Computational Intelligence has been or could be successful with regard to translational medicine, meaning translating the findings in basic biomedical research into practical knowledge that has direct impact in improving health are of particular interest. Also papers that demonstrate or suggest practical useful results with regard to comparative effectiveness, meaning improving the effectiveness of medical choices related to both health improvement and cost benefits are also of interest. Finally, papers that demonstrate successful use of multidisciplinary team work related to the general themes of this session are of interest. Those having regulatory agency and commercial interests in the subject matter of this session are welcome to participate.

## Partial List of Keywords and Phrases

adverse drug reaction detection; alarm systems; biomedical data warehousing & data repository development; biomedical image & signal data mining; biomedical numeric, categorical, text, data mining; comparative effectiveness; continuous monitoring systems; data farming, gathering, imputation, mining, preparation, scaling & validation; decision support tools; design of clinical research trials; designing & using clinical data repositories; diagnosis; disease modeling; disease prevention; drug dose targeting, drug evaluation; drug-diet interactions; drug-drug interactions; early detection & diagnoses of diseases; embedded intelligent systems; fault isolation; hybrid systems; integration of biomedical data from disparate sources; lifetime treatment planning and follow-up; machine interoperability; medical devices; medical ontologism; neural prostheses; numeric, symbolic, text, signal & image data mining; outcome prediction & evaluation; optimization of patient-management workflows; outcome prediction & evaluation; patient monitoring; preventive treatment strategies; prognosis; signal processing algorithms; software dissemination; static, dynamic & interactive data visualization; subject recruitment for clinical research protocols; survival prediction; system anomaly detection; systems & algorithm design; technology transfer; time to event prediction; translational research; treatment selection; untoward event detection; web utilization.