

STUDENT SPOTLIGHT

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Bioinformatics and computational biology play a critical role in bioscience and biomedical research. As researchers design their experimental projects, one major challenge is to find the most relevant bioinformatics toolkits that will lead to new knowledge discovery from their data. University of South Dakota (USD) graduate student Menno Van Diermen is working with Dr. Etienne Gnimpieba and Carol Lushbough from USD Biomedical Engineering in the development of **Bio-TDS (Bioscience Query Tool Discovery Systems, Version 1** available at (<http://biotds.org/>). This system is being developed to assist researchers in retrieving the most applicable analytic tools



by allowing them to formulate their questions as free text. The Bio-TDS is a flexible retrieval system that affords users from multiple bioscience domains (e.g. genomic, proteomic, bio-imaging) the ability to query over 12,000 analytic tool descriptions integrated from well-established, community repositories. Van Diermen is implementing one of the primary components of the Bio-TDS, the ontology and natural language processing workflow for annotation, curation, query processing, and evaluation. He has developed a rule-based (*or predicate*) semi-automatic curation process for the Bio-TDS and has applied natural language processing to the Bio-TDS queries (e.g. stemming, tagging, English synonym mapping) for further augmentation.

Van Diermen is pursuing a master's degree in computer science and is a contributor to the Nucleic Acids Research published journal article, Bio-TDS: bioscience query tool discovery system (<http://nar.oxfordjournals.org/content/early/2016/10/18/nar.gkw940.full>)¹ (<http://nar.oxfordjournals.org/content/early/2016/10/18/nar.gkw940.full>)⁰. He also was a platform session oral presenter during the 2016 Biomedical Engineer Society Convention on *OntoBIDS: An Ontology Driven BioImage Dataset Discovery System* held in Minneapolis, MN.