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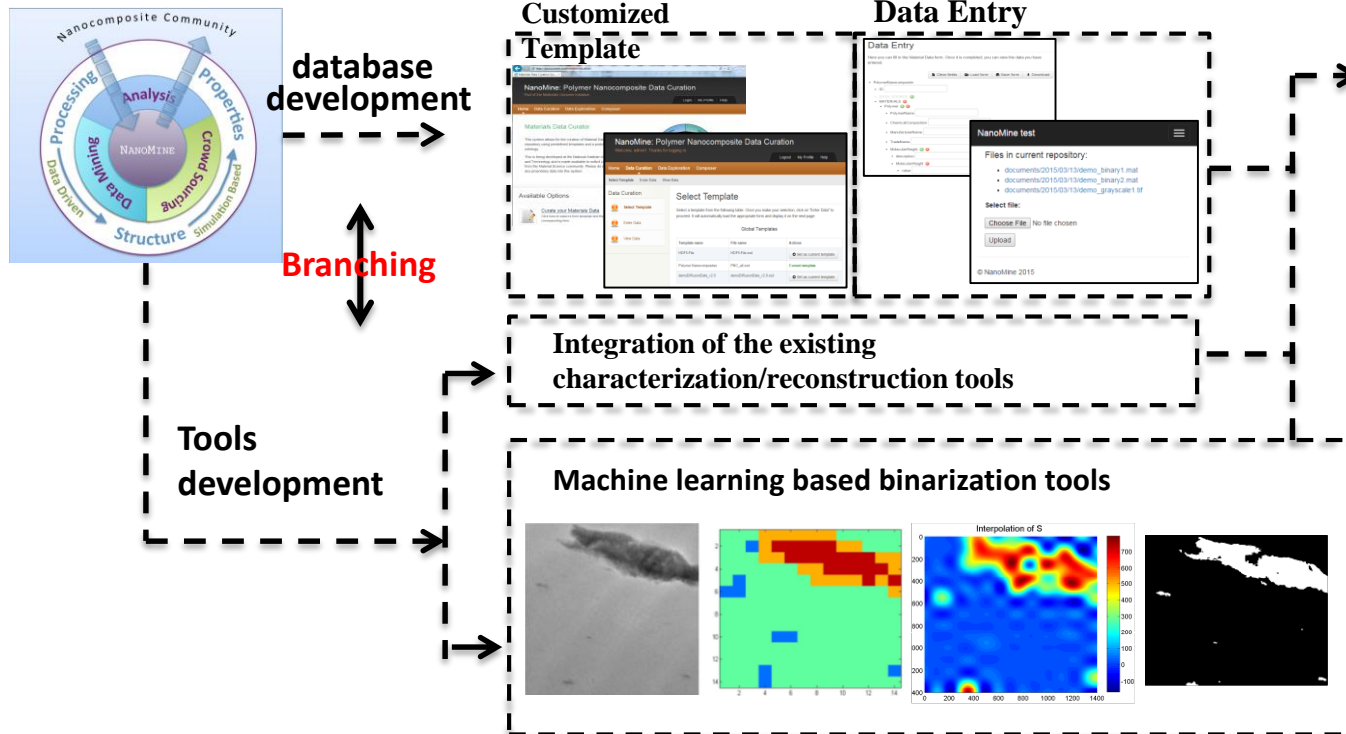
# Material Genome Prediction Based Analyses and Design for Polymer Nanocomposites

Students: He (Richard) Zhao, Xiaolin Li

Advisors: Prof. Cate Brinson, Prof. Wei Chen

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**The objective** of this PSED project is to establish an integrated framework of database, statistical and machine learning techniques to provide a prototype platform to characterize, identify and design new optimal polymer nanocomposites. This objective matches well with the aim of the Material Genome Initiative (MGI), which is to reduce the development time of new advanced materials by 50%. Tallying with the MGI requirement of data transparency, our new data resource for polymer nanocomposites as well as the statistical and FEA based tools will be designed for easy access and information extraction for the public. We target thermomechanical as well as dielectric properties as testbeds for this project so that we can take advantage of the developing data resource from experimentation in our collaborator's lab.



**Project main deliverables:**

- 1) a prototype online resource that are live and testing ('NanoMine') with database and demo module tools.
- 2) Machine learning based image analysis and microstructure processing algorithm that converts raw gray-scale micrographs into binary image for subsequent analysis.

