**IE Capstone: Research Planning**

**Team Number and Project Title: Team 08 – Fault Diagnosis for High Precision Manufacturing Processes**

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| **Type of Information** | **Ideas for Research** |
| Domain Info | Develop a machine learning model that detects fault types in advance to support ion mill etching machine.   * Machine learning algorithms (SVM, random forests) * Impact of early fault detection * Time series classification analysis |
| Stakeholder Needs | Client wants a high-accuracy model that can predict fault types in advance  No big constraints on the model that client is looking for |
| Existing Solutions /  Current State of the Art | There are existing solutions/models in place, but for us it’s about using those existing solutions and making improvements since machine learning models can always be fine tuned |
| Intellectual Property | Patented code? Not sure how much of an issue this will be for our project |
| Regulations and Standards | Again, not sure if this is relevant to our project |
| Materials/Components/Tools | Machine learning in Python  Data science online resources  Data preprocessing, dimension reduction, etc.… |