VIP Team Info Sheet

<table>
<thead>
<tr>
<th>Team Name</th>
<th>Urban LiDAR and Remote Sensing</th>
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<td>Goals</td>
<td>Driven by ground-breaking, high density urban LiDAR datasets, this project-based course will form research teams that will work together to develop a high performance spatial data management tool which will allow data users to efficiently store, index, integrate, and query point cloud datasets that are both high resolution and of a massive scale. This VIP course will coordinate with the NYU Tandon School of Engineering and CUSP.</td>
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<td>Research, Design or Technical Issues Involved or Addressed</td>
<td>The team will research solutions to address the uniquely 3D challenges inherent in converting massive LiDAR point clouds into actionable insights for improving urban life. These challenges include spatial data indexing, parallelization of 3D data storage and querying, automatic change detection, multi-modal data integration, deconvolution of full waveform data, and the development of effective user interfaces to support the use of this exciting new data.</td>
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| Sub-teams | • Full Waveform  
• Change Detection  
• Databases  
• Parallelization  
• Data Integration  
• GUI |
| Methods/Technology | Big data  
LiDAR  
Hyperspectral imaging  
Civil, urban, environmental, transportation engineering  
Spatio-temporal database design and indexing  
Parallel computing  
Data integration |
| Majors and Areas of Interest | Civil Engineering  
Applied Urban Science and Informatics  
Electrical and Computer Engineering  
Statistics and Applied Math  
Computer Science |
| Partners | NYU Tandon School of Engineering  
Center for Urban Science and Progress |
| Related Engineering Grand Challenges | Providing precise, accurate, actionable, real world geometries for use in engineering analyses. Effectively leveraging big data to inform real world action in a built-environment context |
| Contacts | Primary Instructor: Debra Laefer (debra.laefer@nyu.edu)  
Course Coordinator: Brittney O’Neill (brittney.oneill@nyu.edu) |