**Research Goal**
To build a one-size-fits-all database system which:
- Is able to efficiently handle different types of multimodal data
- Caters well to existing and newer data management use cases
- Adapts automatically to initial as well as changing workload
- Provides overall improved performance
- Has lower cost
- Is easier to maintain

**Research Challenges**
- Different types of multimodal data in a single system
- Different storage layouts under a single umbrella
- Online adaption of storage layouts
- Storage layout optimization algorithms
- Picking right layout for query processing
- Update strategies for heterogeneous layouts
- Compression schemes for different storage layouts
- Simplicity versus Optimization

**Methods**

**Architecture**

<table>
<thead>
<tr>
<th>API</th>
<th>Storage View Score</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log SV</td>
<td>Purging &amp; Checkpointing</td>
<td>Recovery Manager</td>
</tr>
<tr>
<td>Query Catalog</td>
<td>Storage View Catalog</td>
<td>Holistic View Optimizer</td>
</tr>
<tr>
<td>Transaction Manager</td>
<td></td>
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</tr>
</tbody>
</table>

**Storage Views**
- Arbitrary physical representations of data
- Examples: Row, Column, Partitioned, Index, Adaptive etc.

**Storage View Selection**
Single optimization problem for:
- Query optimization
- View maintenance
- Index selection
- Store selection

**Holistic Storage View Optimizer**
- Storage View Selection
- Storage View Update Propagation
- Still, Storage Views can have specialized techniques within

**RESULTS**

**Use-case: Flight Booking System**

**Comparison with state-of-the-art**

Aleh Jindal, Supervised by Prof. Jens Dittrich
The Mimicking Octopus: Towards a one-size-fits-all Database Architecture, VLDB 2010 PhD Workshop