## 2015 Senior Honors Thesis Presentations

**Wednesday, April 8, 2015**

6:30 pm – 8:00 pm

348 Seigle Hall

*(Light supper from 6 – 6:30pm; desserts following)*

<table>
<thead>
<tr>
<th>Session</th>
<th>Presenter</th>
<th>Title</th>
<th>Abstract</th>
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<tr>
<td>6:30 – 6:35</td>
<td>Prof. Bruce Petersen</td>
<td>Welcome &amp; Introduction</td>
<td>To this day, poverty strikes about one in four Paraguayans. This study seeks to explore the determinants of poverty in Paraguay and to find which household characteristics are related to poverty status. By finding these possible determinants of poverty, policymakers can design improved social policies that target poverty more effectively. To analyze the determinants of poverty both an ordinary least squares regression and logistic models are used with data from Paraguay’s 2013 Permanent Survey of Households. Among the primary factors significantly related to poverty or lower incomes are: being a female household head; being only Guarani-speaking; having a lack of education; lacking health insurance; lacking access to sewers; lacking a work contract; being self-employed; and working in agriculture (for the general and urban data). Possible policy recommendations for poverty alleviation include: strengthening bilingual education programs; enhancing enrollment in, and access to, secondary and tertiary education; undertaking agrarian reforms that promote a more equitable land distribution; formalizing informal sector employment; improving access to health insurance; and improving access to sewers. By better understanding poverty, the Paraguayan government’s policies will be more effective in their goals of reducing the high poverty rate in the nation.</td>
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<td>6:35 – 7:00</td>
<td>Raul Duarte (Mentor: Prof. Yongs Shin)</td>
<td>Socio-Economic Determinants of Poverty in Paraguay</td>
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<td>(approximately)</td>
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<td>7:10 – 7:35</td>
<td>Mark Heimann (Mentor: Prof. Maggie Penn)</td>
<td>Using Rewards to Motivate Present-Biased Agents</td>
<td>Theoretical and empirical work in behavioral economics has shown that time inconsistency may lead to irrational and sub-optimal behavior, such as procrastination, abandonment of tasks, or inefficient changing of plans mid-task. These phenomena can be modeled as a planning problem on a task graph whose vertices represent states and whose weighted edges represent actions with costs. Without proper motivation, agents often abandon their task partway through the graph, or if they reach their destination node, they do so inefficiently, by a path other than the minimum-cost path. This paper proposes methods for motivating agents to complete their tasks efficiently successfully by assigning intermediate rewards to nodes of the graph. We demonstrate a simple, fail-safe motivational technique that motivates the agents at the actual cost of all their actions, but we show that in many cases a graph designer can motivate agents at less than the actual cost of all their actions. To develop our method we introduce new concepts of graph following that reflect agent intention as well as behavior. We formalize our methods algorithmically and make them more robust to practical considerations, such as when the graph designer is uncertain as to the agent’s true level of present bias.</td>
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