SEEDS "You Choose" Awards Proposal Cover Page

to

SEEDS Program
University of Miami

Submitted by

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Title: Academic stimulus via Industrial Engineer speaker series

Period of Performance: April 1, 2009 – March 31, 2010

Date submitted: January 28, 2009

Principal Investigator: Dr. Eunji Lim
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Amount Requested: $2,500

Signed:

Principal Investigator:

Eunji Lim

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Abstract

In this project, I aim at hosting a series of seminars in the School of Engineering at the University of Miami. It consists of 3 invited talks by distinguished scholars from Industrial Engineering area. The goal of this project is two–fold: 1) To communicate and exchange research ideas with leading researchers with an aim to publish in peer–reviewed journals. 2) To network with diverse speakers selected for the seminar. The main resource for this project will be the support for speakers with their transportation and accommodation.

Goal

The goal of this project is to achieve an academic stimulus that can lead to exchange of research ideas which can be further developed for journal publication or conference presentation and to build a deeper network with diverse researchers. There is a significant need for this project in the following sense:

1. Seminars are one of the crucial elements in research activities which serve as a source for information and a hub for networking. The series of seminars in the School of Engineering at the University of Miami will provide such an opportunity to all members of University of Miami community.

2. One of the features of this project will be the participation of different speakers from under–represented groups. This will distinguish the project from other series of seminars and improve the status of under–privileged groups.

3. Industrial Engineering is an interdisciplinary area which covers, but is not limited to, the areas of Management Science and Econometrics in the School of Business, Mathematics, and Statistics. So, the seminar series will benefit many researchers in these closely related areas of study at the University of Miami.

How the award funds will be used to further my career and scholarly goals

The award will serve to further my academic goals in the following ways:

1. One of the important resources that I, as a young researcher, seek is an academic environment where one can constantly communicate with leading researchers in one's research programs. In particular, I am developing a research program which will provide a fundamental framework in optimization in the presence of uncertainty. While deterministic optimization problems have been well–defined, well–developed, and intensively studied in literature, scholars have not paid much attention to optimization problems that arise in situations where uncertain nature of the problem is inevitable. Optimization problems under uncertainty has been treated from a completely different perspective than the deterministic case whereas these two share a similar nature. Furthermore, algorithms developed in the field of optimization under uncertainty are independent of each other and there are no unified approaches to measure the efficiency

of the proposed algorithms. So, there is a significant need for research that provides a unified and structured framework in the field of optimization under uncertain environment. Some ideas related to this were presented at INFORMS National Meeting, Pittsburgh in 2006 by Lim, E. and Glynn, P. in their paper entitled "Discrete Optimization via Simulation in the Presence of Regularity". This idea has further been developed in "Simulation–based Response Surface Computation under Shape Restrictions" by Lim, E. in her doctoral dissertation in 2008. The speakers in this seminar series will be selected to provide broader and deeper knowledge and vision in optimization, stochastic modeling, and simulation.

2. One of the aspects that cannot much be emphasized in scholarly activities is building a network with researchers in one's field. This can be done through formal and informal meetings at seminars and conferences. This project will give an opportunity to build a deeper relationship with esteemed researchers in various areas of Industrial Engineering.

Budget Justification

Travel: Funds are requested to support domestic travel for three invited speakers to University of Miami (estimated \$500 airfare and two nights of room and board at \$150 per night $\times$ 3 travelers = $\$2,400$.

Publications and Documentation Costs: \$100 is budgeted for page and/or reprint charges associated with publishing ideas that are stimulated by the project in peer–reviewed journals.

Eunji Lim, BIOSKETCH

Professional Preparation

INSTITUTION AND LOCATION	DEGREE	YEARS
Korea Advanced Institute of Science and Technology, Daejeon, ROK	B.S.	2001
Stanford University, Palo Alto, CA	Ph.D.	2008

Appointments

Assistant Professor, University of Miami, 2008–present

Publications

1. Glynn, P. W., Lim, E. 2009. Asymptotic Validity of Batch Means Steady–state Confidence Intervals. In George Fishman Festschirift, to appear.

2. Lim., E., Glynn, P. W. 2006. Simulation-based Response Surface Computation in the Presence of Monotonicity. In Proceedings of the 2006 Winter Simulation Conference, Monterey, CA, pp.264–271.

Synergistic Activities

1. Innovations in teaching and training: In a Production and Inventory Control course at the University of Miami, I developed a teaching strategy where I encouraged students to present their ideas before they learn standardized theory and to collaborate with each other in their course work. I received several comments that the presentations improved students' understanding of the materials and the collaborations helped students keep up with their course work especially when the course material was more sophisticated and challenging.

2. Development and/or refinement of research tools: In the book chapter "Asymptotic Validity of Batch Means Steady–state Confidence Intervals" co–authored with Glynn, P., I have established the validity of the method of batch means which is a widely applied procedure for constructing steady-state confidence intervals.

3. Computation methodologies, and algorithms for problem solving: In my co–authored paper with Glynn, P. entitled "Simulation-based Response Surface Computation in the Presence of Monotonicity" presented in the 2006 Winter Simulation Conference, I have proposed an innovative methodology in statistical inference. Also, in my dissertation, I have proposed and analyzed efficient algorithms that help tackle important problems involving optimization under uncertainty.

4. Broadening the participation of under–represented groups: In my classes, that consist of students from diverse background, I grant equal opportunity to all to participate

and to get access to learning materials. In my office hours, one of my important roles as an instructor is to make sure that everyone has an equal amount of time to have a discussion with me and an equal amount of resources that they can make use of.

5. Service to the scientific and engineering community outside of my immediate organization: I have served as a reviewer of *Transactions of Modeling and Computer Simulation* since April 2008 and have acquired knowledge in the field of simulation and stochastic modeling that makes me qualified enough to organize the seminar series.

Collaborators & Other Affiliations

1. Collaborators in the last 48 months: Shihab S. Asfour, University of Miami; Murat Erkoc, University of Miami; Dingxi Qui, University of Miami; Peter W. Glynn, Stanford University

2. Graduate advisor: Peter W. Glynn, Stanford University