

# Panel: Student Self-Perceptions Regarding Their First Position After Graduation: What Are They and How Do We Help?

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**Abstract**—This panel session will provide findings from the Professional Engineering Pathways Study (PEPS) followed by an interactive discussion between the panel members and attendees. The interactive forum is intended for stakeholders interested in understanding undergraduate engineering students career choice pathways. The process of engineering graduates pursuing their first position after graduation has become an increasingly complex process. Understanding the ever-increasing number of career options, discerning the specific engineering skills employees desire for a position, and the variety of methods resulting in successfully receiving a job offer may be daunting for students. PEPS, a multi institutional longitudinal mixed methods study, studied factors such as career options, the knowledge, skills, and abilities required for those options, and student career expectations, values, and goals from both university influencer and student perspectives. The panel will highlight salient results anticipated to be of interest to academic advisors, career counselors, faculty, and students pursuing their first position after graduation and act as a catalyst to an interactive discussion with attendees.

**Keywords**—*first position after graduation, student self-perceptions, career placement*

## I. GOALS OF THE PANEL SESSION

The goals of the panel session include the following:

- To provide a brief summary of the research on the NSF-funded Professional Engineering Pathways Study (PEPS) related to student self-perceptions related to obtaining their first position after graduation (FPAG).

- To illuminate the role of socializers and context on student's preparedness, confidence, and knowledge of obtaining their FPAG.
- To provide a brief summary of the role and perspective of the university liaisons regarding the collection of data and receipt of findings.
- To use findings from the research as a springboard for the audience members to engage in discussion and summary of current practices.
- To provide implications for university stakeholders and engineering education policy.
- To document the results of the session for dissemination.

## II. DESCRIPTION AND RATIONALE

### A. Background

The process of engineering graduates pursuing their first position after graduation has become an increasingly complex process. Understanding the ever-increasing number of career options, discerning the specific engineering skills employees desire for a position, and the variety of methods resulting in successfully receiving a job offer may be daunting for students. Furthermore, forty percent of engineering bachelors' degree recipients leave engineering within three years of graduation [1]. Reasons engineering graduates do not enter into an engineering career, or leaving within three years of graduation, are not fully understood. Thus, we argue, to build a diverse and highly skilled workforce, research is needed to better grasp the students'

decision-making process and supports they draw upon as they seek their FPAG.

To address these concerns, the NSF-funded Professional Engineering Pathways Study (PEPS) has undertaken a longitudinal mixed methods study to answer research questions including career options engineering students believe are available to them; the knowledge, skills, and abilities salient to their preferred careers, and career expectations, values, and goals they have regarding their FPAG. Through the study, we conducted interviews with student advisors, engineering faculty, and career service staff, i.e., university influencers, about their perceptions of engineering students and the career resources available on their campuses. Drawing on findings from that data, two longitudinal student surveys were administered to juniors and seniors at six institutions to obtain their viewpoints on various aspects of the job search experience. Qualitatively, we conducted phone interviews with 62 of these juniors and seniors to better understand how students approach their FPAG, why particular socializers and contextual influences are influential, and to explore differences between students, their context, and their approach. The work is guided by the Professional Pathways Model which leverages Expectancy-Value Theory [2] and the Cognitive Information Processing Theory [3].

#### *B. Panel Session Details*

The session will open with introductions and a brief overview of the PEPS research project. Each panel member will then provide insight into the findings based on their specialty within the project and answer questions asked by the panel session participants.

Next, participants will be organized into small groups to engage in discussion and evaluate the research findings in the context of their own institutions. Small groups will then report out to the group as a whole. We will document the outcomes from the small group discussions and disseminate them to attendees. The outcomes will also inform the researchers on the PEPS project and their future work. This session itself will not generate any research papers. However, we will provide a list of current publications and other resources from the project.

#### *C. Rationale*

The rationale for holding a panel session for this topic is to promote discussion and application of PEPS research findings. Our mixed methods, longitudinal study with data collection at a national (United States) level allows for a broad and transferrable range of data. A panel session provides a medium for participants to ask for the combination of results that best fits their current needs. Through this interactive panel session, participants will have the opportunity to hear and discuss the findings, to share concerns relative to their own sites, and to seek feedback from panelists and other session attendees. This panel session allows for an active interaction with researchers and research findings that is not possible through standard papers sessions and that increases the likelihood of participants to actually leveraging the research findings.

### III. PANELISTS

The PEPS team is multi-institutional and includes research team members, liaison members from partner institutions, and outside evaluators. Our panel team includes members of our research team and liaison members, each of whom provide a unique perspective and expertise related to the project. Each member and the particular area(s) they will highlight are:

Cheryl Carrico, Research Scientist, Virginia Tech.

- University Influencer and student interview data collection, analysis, and findings
- Patterns within the job acquisition process

Holly Matusovich, Associate Professor, Virginia Tech

- Implications for university stakeholders and students
- Motivation expert including Expectancy Value Theory framework

Samantha Brunhaver, Assistant Professor, Fulton Schools of Engineering, Arizona State University

- Student survey data collection, analysis, and findings
- Patterns related to student's career expectations, values, and goals

Jinny Rhee, Associate Dean, College of Engineering, San Jose State University

- University Influencer liaison
- University Influencer perspective

Sheri Sheppard, Professor, Mechanical Engineering, Stanford University

- Implications for engineering education, policy, and professional practice
- Project evaluation considerations

Helen L. Chen, Research Scientist, Mechanical Engineering, Stanford University

- Administrative and logistical considerations related to survey recruitment, deployment, dissemination and communication with research stakeholders
- Archiving of project data and guidelines for current and future research access and analysis by external analysts

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## REFERENCES

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