Brandston Grant Recipients

The winners of this year's Howard Brandston Student Lighting Design Education Grant were **Riley Johnson** (left) and **Jeff Thompson** (right) of the University of Nebraska-Omaha. Honorable Mention went to **Fairooz Al Awami** and **Yamileth Orduna** of Penn State.

The Gift That Will Keep on Giving

IES Member **Tony Esposito** presented quilling art work to IES President **Lance Bennett** and Executive Director **Timothy Licitra** as a gift to the Society on the final day of the conference. The piece, which took 50 hours to complete, was finished that very morning and is Esposito's first foray into quilling. The art work is now prominently displayed at the IES offices in New York.

Research Paper Summary

A total of 27 research papers were presented at the Annual Conference, three of which are summarized here.

- Dr. Riad Saraiji presented **"Fuzzability: A New Approach to Modeling Visibility Using Fuzzy Techniques."** (Co-authors: Issah M. Alhamad and Halim Boussabaine, Ph.D.; all are from The British University in Dubai.) In this context, *fuzzy* means imprecise. Fuzzy logic techniques are approximations. These models are used when math precision is impossible or impractical. The Relative Visual Performance (RVP) model (Rea and Ouellette, 1988, 1991) can be expanded to include other variables, such as target eccentricity or chromatic contrast. The data are "fuzzified" by classifying them in membership sets, which depend on task characteristics. A total of 81 "if-then" rules (applied in supra-threshold conditions) lead to a resulting Fuzzy Relative Visual Performance (FRVP) rating. The researchers found that when FRVP was high, it matched well with RVP. However, at lower RVPs, FRVP did not match RVP very well.
- Rez Mani (Allied Scientific Pro) presented **"Artificial Light Balance for Growing Different Varieties of Tomatoes in Different Environments."** (Co-author: Ian Godfrey, University of South Florida.) Three varieties of indoor-grown tomatoes were grown in an LED chamber, a greenhouse or an outdoor garden. Different wavelengths of light have different effects on the plants. Blue helps morphology and leaf darkness; green is less effective for photosynthesis but is more likely to reach the lower (shaded) parts; and red is important for photosynthesis. In the LED chamber, the light provided was mostly blue and red, with a little green added for visual comfort. Compared with the greenhouse and the outdoor garden, the LED chamber produced plants with larger fruit clusters; larger, darker colored fruit; and better leaf color.
- Clifford J. Yahnke (Kenall Manufacturing) presented **"Visible Light Disinfection: A Novel Approach to Reducing Surgical Site Infections."** Sunlight has been used throughout history to kill bacteria. This has been thought to be mainly due to the ultraviolet (UV) component. In recent years, it has been found that a very narrow part of the visible light region (405 nm ± 5 nm) is also effective. LEDs are the key to applying this knowledge, with their smaller form factor, high output and customizable spectrum. With the equipment running 24/7, the effect is continuous disinfection. Outcome data show reductions in infections. The intent is that this could be a supplement to the usual sterilization techniques, not a replacement. Applications would include pharmacies, waiting areas, bathrooms, restrooms, and procedure or exam rooms. The lighting specifier should ask manufacturers to provide data to support claims for effectiveness.

Dawn De Grazio