Second Annual

Virginia Governor’s School Maker Conference

Friday, April 17, 2015

The Cube, Moss Arts Center

Virginia Tech Institute for Creativity, Arts, and Technology

Virginia Tech School of Visual Arts

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<td>Keynote</td>
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<td>10:15</td>
<td>Break</td>
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Ben Knapp, ICAT Director

R. Benjamin Knapp is the Director of the Institute for Creativity, Arts, and Technology (ICAT) and Professor of Computer Science at Virginia Tech. ICAT seeks to promote research and education at the boundaries between art, design, engineering, and science. Dr. Knapp also leads the Music, Sensors, and Emotion research group, with researchers in the UK and the US.

Charles Nichols, keynote speaker

Composer, violinst, and computer music researcher, Charles Nichols explores the expressive potential of instrumental ensembles, computer music systems, and combinations of the two for the concert stage and collaborations with dance and video. He teaches Composition and Computer Music at Virginia Tech, and has earned degrees from Eastman, Yale, and Stanford. His work has received support from the NEA, NSF, New Music USA, and the Prop Foundation, in addition to recognition from the National Academy of Music, La Fundación Destellos, Bourges, ASCAP, and the Montana Arts Council. He was a visiting scholar at the Sonic Arts Research Centre at Queen's University Belfast, N. Ireland; a visiting composer with the Namaste Ensemble in Città di Castello and Rome, Italy; and a resident at the Ucross and Brush Creek Artist Retreats in Wyoming. His recent premiers include *Nicolo, Jimi, and John*, a concerto for amplified viola, interactive computer music, and orchestra and *Sound of Rivers: Stone Drum*, a multimedia collaboration with sonified data, electric violin, computer music, narrated poetry, dance, animation, and processed video.
1. **Animals in Biotechnology**
   Guardians of the Vegetables – Chase Perdue
   Do-it-Yourself Gel Electrophoresis – Mckenzie Hunt
   Carassius AquaPonics – Brandi Benedict, Kristina Simpkins
   *Southwest Virginia Governor’s School*

2. **BusBuddy: An iOS Application to Track the Location of School Buses**
   Miriam Buscher, Shannon King, Audrey Gumbert, Kevin Brown, Tanya Hoatson
   *New Horizons Governor’s School*

3. **Cell Immobilization Activity**
   *Southwest Virginia Governor’s School*

4. **Cork-ucopia**
   Austin Briles, Carlin Smith, Ty Crossen, Ally Green
   *Mountain Vista Governor’s School*

5. **Electromagnetic Projectile Launcher**
   Forrest Hollberg, Ailec Wu
   *Shenandoah Valley Governor’s School*

6. **Highway Energy Harvesting and Visual Transformation System**
   Chan Dong Kim, Curtis Guilford, Celine Stewart, Rafael Chontos
   *New Horizons Governor’s School*

7. **Making Poems Out of Nothing**
   Joseph French, Parissa Joukar
   *Mountain Vista Governor’s School*

8. **Microbes in Biotechnology**
   Application of Oil-Eating Bacteria – Ethan Cress
   Implementation of Bacteria to remove Copper Sulfate from Water – Lilly Caudill, Tanner Dotson, Hannah Lester, Sarah Meek, Savannah Patton
   *Southwest Virginia Governor’s School*

9. **Novel Laser Musical Instrument**
   William Brayshaw, Tom Hawkins, Louis Rizzi, Austin Meier
   *New Horizons Governor’s School*
10. Phytoremediation Activity  
*Southwest Virginia Governor’s School*

11. Piezoelectric Car Shocks  
Henry Wyatt Wilson, Olivia Nicole Heeb  
*Shenandoah Valley Governor’s School*

12. Plants in Biotechnology  
Fish are Friends and Make Food – Kendra Hale, Joseph Stacy  
The LilyPak – Rafe Hagee, Dalton Anderson, Nick Sink  
Utilizing Ethylene to Augment Biodegradation Rate – Josh Farris  
*Southwest Virginia Governor’s School*

13. Rain Sensing Window Controller  
Witt Yancey, Becca Ford, Tom Argiro  
*Shenandoah Valley Governor’s School*

14. Remote-Controlled Hovercraft  
Josh Matheney, James Baldwin  
*Shenandoah Valley Governor’s School*

15. Robotic Self-Navigating Cart (Model)  
Seth Jones, Witt Yancey  
*Shenandoah Valley Governor’s School*

16. Spy Bot  
Meredith Palmore, Brad Houska, Hana Pross  
*Mountain Vista Governor's School*

17. Stringing Outside the Lines  
Allie Zaleski, Joseph French, Marissa Windsor, Shannon McAvoy, Claire Bishop, Austin Evans  
*Mountain Vista Governor's School*

18. Thermoelectric Charging Belt  
Kaela Frazier, Caroline Markley, Julia Smith  
*New Horizons Governor’s School*
MAKER Conference

Conference Organizers
Phyllis Newbill, ICAT
Sam Blanchard, School of Visual Arts
Liesl Baum, ICAT

Judges
Travis Head, School of Visual Arts
Kristen Hines, Bradley Department of Electrical and Computer Engineering
Mike Rosenzweig, Department of Biology
Mitzi Vernon, School of Architecture + Design

Institute for Creativity, Arts, and Technology
Benjamin Knapp, director
Liesl Baum, research assistant professor
Lisa Jansen, senior budget and contracts manager
Phyllis Newbill, studio associate
Tanner Upthegrove, media engineer
Melissa Wyers, administrative assistant

Center for the Arts at Virginia Tech Staff
Artistic/Programming
Ruth Waalkes, executive director, associate provost for the arts
Sara Bailey, program manager
Jon Catherwood-Ginn, partnerships and engagement manager
Margo Crutchfield, curator at large
Joyce Smith, administrative assistant

Development
Lois Badey, senior director of development
Jessica Clough, asst. director of development
Brittany Guill May, development assistant

Finance and Administration
Liz Scharman, director of administration
Kevin Ayoub, facilities manager
Steve Cox, IT specialist
Kelly Stanley, administrative services manager

Marketing and Communications
Heather Ducote, director of marketing and communications
Susan Bland, communications manager
Jonathan Boulter, associate director of patron services
Shana Buzzard, marketing and special events coordinator
Avery Eliades, digital content specialist
Katy Baker Johnston, house manager
Kacy McAllister, box office manager
Brian Yohn, creative services manager

Outreach
David Ehrlich, outreach fellow for the fine arts

Production Services
Doug Witney, director of production services
Gustavo Araoz, lighting supervisor
Robert Gainer, audio supervisor
Laine Goerner, production coordinator
Ryan Hasler, stage and rigging supervisor

THANK YOU
Thanks to VISTA Volunteer Karl Bitikofer and ICAT graduate students Sara Sweeney and Zach Bush. Thanks to undergraduate student volunteers from VT Engage and the Gallipatia Outreach Committee.

Thanks to faculty and staff of participating schools, particularly Vincent Daw, Krista Stith, Steve Walk, and Rosanne Williamson.

Participating schools
Shenandoah Valley Governor’s School, Fishersville
Mountain Vista Governor’s School, Warrenton
New Horizons Governor’s School, Hampton
Southwest Virginia Governor’s School, Pulaski