Bridging the Gap: Divergence between ProCams Research in Industry and Academics

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Two Different Cultures

• Academia
  – R & d
  – Paper and Graduates

• Industry
  – R & D
  – Products and Profit
Divergence

- Academic prototypes often not robust
- Academic ideas are often partial solutions
- Industry choices driven by market potential
- Perceived divergence: commercial vs. military research focus
Convergence

• Industry needs new ideas & talent to compete
• Academia needs funding

Shouldn’t this be a self-correcting loop driven by $$$ ?
Cameras Trends

• Early 90s – color cameras $$$
• Today – Webcams for $50
  – Driven down by volume markets
  – Camcorders, digital still, web and cell phones
Camera Wish List

- HDR capable
- Better color constancy across arrays
- Compression options
- Onboard user-programmable processing
  - Distortion correction
  - Background subtraction
- More resolution, frame rate
- 3-CCD color, progressive scan, PTZ
- GREAT 3D camera
Projector Trends

• Early 90s
  – $20K and up, 50-200lbs
  – Small market (large meeting rooms, simulation market, labs)

• Today
  – Under $900, under 2 lbs - “track lights”
  – Expanding market - commercial and home entertainment
Projector Wish List

- More resolution, Less heat and acoustic noise
- Lens Options:
  - Short-Throw, wide-FOV
  - More Depth of Field & Lens Shift
- Black that is Black
- 10-12 bit grayscale resolution
- Programmable transfer response
- Programmable warp engines (low cost)
- Stereo, Auto-stereo
- Embedded Camera (a couple exist now)
- DLP Projector Kit
- Access to engineering contacts at companies
Bridging the Gap

- More technical exchange
  - Cross-conference participation (I/ITSEC, Infocomm, IMAGE, SID, CVPR, ProCams, etc)
- More working relationships and partnerships
  - Joint development
  - Summer internships and collaboration
- Academics put more emphasis on application driven research and engineering
- Show Value!