AMP RESEARCH INC.

AMON-HEN PROPOSER’S DAY CONFERENCE
MAY 11, 2017

WWW.AMPRESEARCH.COM

- FOUNDED 1989
- BASED IN NAPLES, FL
- SMALL HIGH-TECH COMPANY - WOMAN-OWNED
- PI: DR. S. ENGUEHARD
- NUMEROUS PRIME AND SUBCONTRACTS WITH:
  ARMY, NAVY, AF, NASA, DOE, SDIO / BMDO / MDA, CTTSO, NIJ
RELATED PROGRAM & PROJECT EXPERIENCE

- High-energy Laser Projects (that involve atmospheric propagation)
  - GBFEL (SDIO)
  - MTHEL (Army)
  - SBL (BMDO)
  - ABL (AF)
  - SELENE (NASA)

- Computer generated Holographic Imaging (NASA & AF)

- Microscanning (image enhancement technique to increase resolution)(AF)

- SOPHI - Segmented Optics Phase Integration (NASA HQ)

- LENS - Library of Enhanced Night/Day-vision Software (HASC through ARMY)

- iLIVE - inLine Instant Video Enhancement (CTT SO)

- CSHIPS - Covert Ship Hull Inspection Protection System - Underwater Vision Enhancement (CTT SO)
EXPERTISE

- Theoretical & Mathematical Physics
- IR Astronomy
- Electronics RTD&E
- Atmospheric Propagation
- Atmospheric Optics and Speckle Imaging
- Adaptive Optics
- Diffractive and Holographic Optics
- Photonic Crystal Design
- Image and Video Enhancement
- Real-time Hardware-based Image and Video Enhancement
- In-house Custom Printed Circuit Board Design
- Embedded System Programming (including FPGA)
- Digital Night Vision
- Mac, Windows, Linux, iOS, Android App Development
- Computational Electromagnetics
- Low-light Sensor & Camera Design
- Electro-optics and Laser System Design
- 3D Printing Design & Implementation
- Exact analytical solution to the physics problem of the interaction of thermal blooming and atmospheric turbulence (with and without adaptive optics)
- Exact analytical solution to the adaptive optics control problem for segmented optics
- AMPERES Computational Electromagnetics Design Tool and Simulation Suite
  - Full wave-optics atmospheric propagation simulation for imaging and directed energy applications and missions
  - Desktop design tool for segmented adaptive optical telescopes
  - Desktop design tool for diffractive optics (scalar and vectorial diffraction regimes)
  - Directed energy systems analysis model for thermal blooming based on functional scaling

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ATMOSPHERIC OPTICS AND IMAGINING PROJECT HIGHLIGHTS

- SOPHI - Segmented Optics Phase Integration
  - Adaptive segmented mirror fabrication and control
  - [https://www.sbir.nasa.gov/SBIR/successes/ss/8-057text.html](https://www.sbir.nasa.gov/SBIR/successes/ss/8-057text.html)

- iLIVE - inLine Instant Video Enhancement
  - Plug-n-play real-time video enhancement: your camera, your display
  - Real-time image and video enhancement and analytics
  - Implements aspects of our LENS (Library of Enhanced Night/day-vision Software)
  - [http://www.cttso.gov/?q=iLIVE_Video_Enhancement_System](http://www.cttso.gov/?q=iLIVE_Video_Enhancement_System)

- CSHIPS - Covert Ship-Hull Inspection/Protection System: Underwater Vision Enhancement
  - Color, Digital night vision, on-board video computer
  - IP68 3D-printed housing
  - 6 separate circuit boards for power, camera sensor, FPGA camera control and real-time image enhancement, display, all done in-house

* Award winning: NASA Tech Briefs, November 2001, pages 25a-27a
AMP RESEARCH INC., CONTACT

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In-house custom video-in video-out (ViVo) and DSP circuit board
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Real-time image analytics: horizon finder

Real-time image analytics: edge detection and evaluation