OMNITRON SENSORS

Using biomimicry to create revolutionary LiDAR technology

Omnitron utilizes principles of biomimicry to create an optical system that addresses the endemic issues of LiDAR in size, manufacturing, cost and reliability. All this while preserving performance.
CEO | ERIC AGUILAR
Perception Sensors Expert
Lead Engineer at leading AV companies

CTO | TRENT HUANG
Ph.D. Cornell
20+ patents in MEMS
FOR SELF-DRIVING CARS

SENSOR SELECTION

RATIONAL
CAMERA VS LIDAR

CAMERA + DEEP LEARNING

- Pros
- High resolution and a lot of data for learning
- Roads are designed for human eyes
- Cheap

- Cons
- Not accurate
- Inconsistent

LIDAR + MAPS

- Pros
- Explainable, consistent
- Accurate

- Cons
- Expensive
LEVEL 4 SENSORS

- No one sensor solution addresses all the sensing needs required for L4.
- Some sensing modes only have one sensor modality which impacts mitigation strategy
**PROS**
- High accuracy depth information
- 1-2 orders of magnitude better than radar
- Large FOV

**CONS**
- Expensive & high maintenance
- Operating in inclimate weather
Camera trade-space

**Pros**
- Cheap
- Highest resolution
- Similar to human eyes

**Cons**
- Bad at depth estimation
- Poor at extreme weather
- Poor at low lighting conditions
Pros:
- Cheap
- Operates in any weather condition
- Most used sensor for object detection and tracking

Cons:
- Low resolution
- Narrow FOV
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APPENDIX
ERIC AGUILAR

CEO

Eric is passionate about sensor development for perception systems, specifically as related to autonomous vehicle technologies. In his career, he has enabled core sensor technologies as related to MEMS IMUs, GPS receivers, Radar, and LiDAR systems.

Notable Accomplishments:

LED ARGO'S SENSOR TECHNOLOGY SUITE THAT ENABLED AUTONOMOUS DRIVING

TESLA'S MODEL 3 SENSOR INTEGRATION LED THAT LED TO SUCCESSFUL PRODUCT LAUNCH

LED GOOGLE[X] WING AVIONICS TEAM TO DEVELOP AUTONOMOUS FLIGHT FOR CONSUMER DRONE DELIVERY

LED EXECUTION OF LUMEDYNE'S MEMS IMUS THAT LED TO GOOGLE ACQUISITION

GROUND UP (IC LEVEL) DEVELOPMENT OF GPS RECEIVERS AND RADAR SYSTEMS FOR BLACK DART AND SOCOM DRONE PROGRAMS
TRENT HUANG

CTO, Ph.D.

TRENT IS A MEMS LEADER WITH 20+ YEARS OF EXPERIENCE COVERING A WIDE RANGE OF APPLICATION AREAS FROM CRADLE TO GRAVE DEVELOPMENT IN RESEARCH INNOVATION TO ADDRESSING MANUFACTURING ISSUES. HE’S ALSO WORKED WITH MULTIPLE LEADING MEMS FOUNDRIES AND HAS IN DEPTH KNOWLEDGE OF TOOLS AND DESIGN PROCESSES THAT SCALE. WHILE AT LUMEDYNE TECHNOLOGIES, HE LEVERAGED HIS VAST EXPERTISE AND COMPLETELY REINVENTED EXISTING DESIGN CONCEPT, TOPOLOGY & MANUFACTURING PROCESSES. INVENTED NEW, COMPREHENSIVE SENSING METHODS WHICH ENABLED PRODUCTION-COMPATIBLE SYSTEM CONSTRUCTION. WITHIN A YEAR AND 2 TAPE-OUTS, PROTOTYPE CHIPS OVERCAME FUNDAMENTAL LIMITATIONS OF THE ORIGINAL PRODUCT AND THE SUCCESSFUL PERFORMANCE DEMONSTRATION WHICH LED TO MULTIPLE BIDS AND THE FINAL ACQUISITION BY GOOGLE.

Notable Accomplishments:

CO-AUTHOR TO QUANTUM SUPREMACY

LED MEMS DEVELOPMENT AT LUMEDYNE TECHNOLOGIES

CO-FOUNDED OPTICAL PACKAGING STARTUP (PRODUCTION ONGOING IN CHINA) WITH STATE-OF-THE-ART PERFORMANCE

LED MEMS PRODUCT TROUBLESHOOTING TEAM AT TESSERA AND SOLVED NUMEROUS MANUFACTURING ISSUES
This presentation was presented at EPIC World Photonics Technology Summit 2020

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