



BRADLEY A. CAMBURN

Mailing Address:

Email: bradley.camburn@oregonstate.edu

5553 SW Windflower Drive, Corvallis OR 97333

Phone: (+1) 541 745 9536

EDUCATION

University of Texas at Austin, Austin, TX

Ph.D. in Mechanical Engineering, May 2015

Coursework for M.A. in Design, interdepartmental study, December 2012

M.S.M.E. in mechanical engineering, August 2010

Carnegie Mellon University, Pittsburgh, PA

Bachelor of Science in Mechanical Engineering, May 2008

OBJECTIVE

To develop highly impactful research, to mentor future leaders, and contribute to the growth of Oregon State

FOCUS

Design Prototyping: complex systems development, concept ideation, new technology development strategy, low cost invention, startup acceleration, maker-based learning, aerospace, and complex systems

CURRENT POSITION

Title: **Assistant Professor**, Oregon State University, Mechanical Industrial and Manufacturing Engineering. **August 16th – Present**

Research focus on conceptual ideation, prototyping, and testing to support the embodiment of complex systems at low cost

FORMER ROLES

Title: **Research Scientist**, (formerly Research Assistant) Singapore University of Technology and Design & Massachusetts Institute of Technology, International Design Centre, **January 2013 – June 2017 & April 2018 – August 4th, 2019**

Lead design innovation team in the Singapore IDC branch, 20 research scientists, postdoctoral researchers, PhD candidates, master's degree students, and design engineers to execute design consultancy projects, design innovation workshops, product-service-system development, and research in design science, reported to director.

Title: **Head of Research and Development**, (formerly Chief Engineer) Gilmour Space Technologies & Head Engineer, Loyang Research and Development Centre, reported directly to CEO **May 2015 – February 2018**

Key Responsibilities:

- **Responsible for all research and development activities in the organization**, including internal research efforts and external collaborative projects with research institutes and universities.
- **Developed complex engineering systems**, design of new complex systems from requirements specification, detailed engineering documentation and drawings, to fabrication, test, integration, and verification
- **Directly managed a team of 12 full time employees** with individual projects as well as subsystem development towards coordinated contributions to major systems designs

Key Achievements, at Gilmour Space:

- I. **Ceres Upper Stage System Architect** I conceived a project for a new product and led it through to vehicle architecture design. Ceres is an upper stage spacecraft, which will be the third stage of the Gilmour Eris launch vehicle and can also be sold independently to other launch providers. I secured the team and various subcontractors to produce this vehicle. It is a launch vehicle product with a unit sale cost of at approx. 2Mil SGD.
- II. **SR-0 Sounding Rocket Avionics Lead Engineer** I designed the avionics for Australia's first commercial sounding rocket from system requirements definition through CDR down to the level of detail of production drawings and preliminary unit testing. This design governs the launch, data collection, and recovery sequence. It must endure extreme heat and vibration inside the compact vehicle payload bay. It provides GPS and other active telemetry downlink to a ground-station at Mach 6 and greater speeds.
- III. **Large Scale Fuel Grain Printer System Inventor** I led the requirements definition and procured a customized ABS 3D printer, the largest of its kind, which was used to print the solid fuel grains for the large motor test stand (LMTS). The LMTS is the most powerful hybrid rocket engine using hydrogen peroxide as an oxidizer that has ever been produced.

Other Notable Strategic and Managerial contributions included:

- **Organizational redesign**, transition to 5-heads as opposed to a single chief engineer, the company was restructured to consist of five heads who report to the CEO. Under this structure, the company has successfully demonstrated what may be the fastest orbital class motor development program in history.
- **Designed the fuel composition** and preparation process which was used in the LMTS motor and will be the core fuel used in the Gilmour Orbital vehicle through a series of rapid iterative prototypes.
- Identified the formula for **production of pellet based ceramic catalysts** that can be used to reduce the mass of the engine catalyst pack, dramatically reduce ignition time, increase exhaust temperature (e.g. thrust efficiency), and reduce the cost of catalyst production in future motors
- Successful management of the **NAMIC grant into a patentable new printer**, "Additive Manufacturing for Aerospace Applications NAMIC", this project is on track for timely delivery and has resulted in hard IP
- Tax R&D research grant, **successful grant received** in Australia for 480K Aud
- **Submission of two BAA proposals** to the US army, valued at 5 and 20 million USD, respectively
- Grant application together with UNSW for a large **research grant in GPS innovation** to produce high speed, low cost GPS units, valued at 2 million AUD expected to be funded in mid-2018

- Represented the organization with several presentations: **“Additive manufacturing in Space launch”** at the Singapore Space symposium; **“Deep space applications of Hybrid Propulsion engines”**
- Design and ran a Hackathon, **“Red-Base”**, self-sustainable mars colonization at the ArtScience Museum

Staff mentorship experience at GST:

Stephen Merkley, Propulsion Engineer – 9cm test firings, more than 12 engine firings, test campaign
 Antoine Bichara, Simulation Engineer – SRO fin design and simulation, orbital insertion simulation
 Hwee Choo, Sr Mechatronics eng, SUTD – Motion system requirements, CF printer
 Ashton Murphy, Propulsion Engineer – LM25 fluids control system, design and fabrication
 Lyle Campbell, Composites Engineer – 9cm and LM25 composite nozzles, design and fabrication
 Nithya Sundaraj, Propulsion Engineer – hybrid 8:1 engine throttling test, system design and test execution
 Jay Mo, Chemical engineer – fuel additives chemical decomposition analysis
 Nick Mclean, Chemical Engineer – ceramic catalyst, prototyping and verification
 Dinesh Daluraj, Aerospace Engineer – hybrid drone prototype, design and fabrication
 Pui Kun Choo, Design Engineer – custom large-scale printer prototype
 Terry Lim, Design Engineer – mobile launch tower, design and procurement

Title: **Graduate Research Fellow, 2008-2013,**

Develop, deploy, and publish works in design science with a focus on strategic design prototyping
 UT-Austin Department of Mechanical Engineering, Manufacturing and Design Lab

COURSE INSTRUCTION

3.007 Introduction to design, SUTD, 2016, instructor
 ME 366J Mechanical Engineering Design Methodology, UT-Austin 2008-2010 teaching assistant
 ME 388 Machine elements, UT-Austin 2010 teaching assistant
 ME 355k Engineering vibrations, UT-Austin 2010 teaching assistant

WORKSHOPS

RedBase, Artscience Museum Fabcafe, 2017 Design for space series, *workshop to explore long term-self sustainable habitats using recyclable systems.*
Prototyping in Practice, ASME IDETC, 2016, and Design Society DCC, 2016, *hands-on workshop in principles and techniques of strategic prototyping*
Design Innovation Bootcamp, DSTA, 2014-2016, lead instructor, *three independent runs of a professional development course lasting 15 weeks*
Design Innovation Facilitators Workshop, DSTA, 2016, lead instructor, *train the trainer courses to prepare facilitators for DI Courses*
Rapid Development of Innovative Systems, DSTA, 2016, *directed co-creation course to develop solutions for the new integrated central manpower base*
Design Thinking, NBC Universal, 2016, workshop to co-create initial solutions for new Video-On-demand platform via practical application of design thinking in workshop

INVITED TALKS

Deep Space Applications of Hybrid Propulsion, International Conference on Micropropulsion and Cubesats, NTU 2017
Gilmour Space Technologies – Additive Manufacturing in Space Launch, Singapore Space Symposium, 2017 NUS
Disruptive Systems Innovation, Hong Kong University of Science and Technology, Hong Kong, 2019, Invited

PRODUCT DEVELOPMENT HIGHLIGHTS

Modular Packaging Divider, 2019, *Industry funded product; large scale production to be in the millions of units; I was the sole product designer and lead architect from concept to manufacture; new concept for closed loop packaging in B2B context*
Multi-Phase Composite Printer, 2016, SUTD-MIT IDC, *½ million-dollar grant received after successful development of a first-in-the-world multi material printer for producing hybrid rocket fuel grains*
Prototype Carbon Fibre printer, 2016, SUTD-MIT IDC, *½ million-dollar grant received to invent and prototype 1m³ build volume, first in the world carbon fibre printer using COTS filament*
Eris Sounding Rocket Program Architecture, GSTECH, *sounding rocket program to carry cubesat payload to 100km, market-leading engine field tested, 8 million in VC funding received, 23 million SGD valuation*
Design Innovation Cards, 2016 SUTD-MIT IDC, *a set of cards that succinctly describe key design methods*
Zero-gravity Wall Climb, 2016 GSTech, *development of a simulator to experience climbing in zero gravity*
Tectonic Origami, 2015, SUTD-MIT IDC *invented a class of transformable structures consisting of rigid plates connected with a flexible substrate, patented*
Magnetic Well Bearing, 2015, SUTD-MIT IDC, *invented a bearing architecture with two directional axial magnetic locking using permanent magnets embedded in 3D structure, patented*
Secret Moon, Social Impact for Women’s Health, 2013, SUTD-MIT IDC, Papua New Guinea, *led workshops, generated concepts and prototypes of a product for re-usable sanitary pad for women’s health to enhance social empowerment and integration, in production via social organization*
Ultra-Low Cost AFM, 2013, SUTD-MIT IDC, Tsinghua University, Beijing, *designed and led hackathon wherein teams invented and prototyped an atomic force microscope that costs less than an iPhone*

MULTI-PHYSICS SIMULATION

Nano Robotics Laboratory, 2007-2008, Carnegie Mellon University
 Research assistant, for Prof. Metin Sitti: *50 micron tetherless robot design, testing, and analysis*
Particle Flow and Tribology Research Laboratory, 2006, Carnegie Mellon University
 Research Assistant, for Prof. C. Fred Higgs III: *design, and simulation of large-particle dynamic journal bearing*
Toyota Technical Center, 2007, Ann Arbor MI
 Powertrain Design Group, engineer, *develop multi-physics simulation of entire combustion engine system*

STARTUP FACILITATION

SUTD-MIT IDC Shenzhen hardware accelerator program, Co-founder, 2015
Austin Technology Incubator, Senior Associate 2011, Startup Integration Non-profit Firm

Journal Publications in Review:

- 1) Camburn, B. A., Arlitt, R., Anderson, D., Sanaei, R., Raviselvam, S., Jensen, D., Wood, K. (2018). Computer Aided Mind Map Generation Via Crowdsourcing and Machine Learning, *Research in Engineering Design*

Peer-Reviewed Journal Publications:

- 2) Camburn, B. A., He, Y., Raviselvam, S., Luo, J., Yang, M. & Wood, K. L. (2019). Machine Learning Based Design Concept Evaluation. *Journal of Mechanical Design, Special Issue: Selected Papers from IDETC 2019, in pres*
- 3) He, Y., Camburn, B. A., Liu, H., Luo, J., Yang, M. & Wood, K. L. 2019. Mining and representing the concept space of existing ideas for directed ideation. *Journal of Mechanical Design, Special Issue: Machine Learning for Engineering Design, in pres*
- 4) Camburn, B. A., & Wood, K. (2018). Principles of Maker and Diy Fabrication: Enabling Design Prototypes at Low Cost. *Design Studies*, 58 (2018) 63-88
- 5) Tiong, E., Seow, O., Camburn, B. A., Teo, Kenneth, Silva, A., Wood, K., Jensen, D., Yang, M. (2018). The Economies and Dimensionality of Prototyping: Value, Time, Cost and Fidelity, *ASME Journal of Mechanical Design, Special Issue: Selected Papers from IDETC 2018*
- 6) Camburn, B. A., Viswanathan, V., Linsey, J., Anderson, D., Jensen, D., Crawford, R., Otto, K., & Wood, K. (2017). Design Prototyping Methods: State of the Art in Strategies, Techniques, and Guidelines. *Design Science*, 3.
- 7) Camburn, B. A., Mignone, P., Arlitt, R., Venkataraman, S., & Wood, K. L. (2016). Design- and Maker-Based Learning: From Known Knowledge to Creating New Knowledge. *the Exchange, the gifted education newsletter, Ministry of Education, Singapore*(2).
- 8) Telenko, C., Wood, K., Otto, K., Elara, M. R., Foong, S., Pey, K. L., Tan, U.-X., Camburn, B. A., Moreno, D., & Frey, D. (2016). Designettes: An Approach to Multidisciplinary Engineering Design Education. *Journal of Mechanical Design*, 138(2), 022001.
- 9) Camburn, B. A., Dunlap, B., Gurjar, T., Hamon, C., Green, M., Jensen, D., Crawford, R., Otto, K., & Wood, K. (2015). A Systematic Method for Design Prototyping. *Journal of Mechanical Design*, 137(8), 081102. doi:10.1115/1.4030331
- 10) Camburn, B. A., Otto, K., Jensen, D., Crawford, R. and Wood, K., 2015. Designing biologically inspired leaf structures: computational geometric transport analysis of volume-to-point flow channels. *Engineering with Computers*, 31(2), pp.361-374.

Peer-reviewed Conference Proceedings:

- 11) Camburn, B. A., He, Y., Raviselvam, S., Luo, J., and Wood, K. L.. (2019) Evaluating Crowdsourced Design Concepts with Machine Learning. Paper presented at the ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Anaheim.
- 12) Camburn, B. A., Wee, Y., Chen, L., Sass, L., and Wood, K. L.. (2019) Recursive Segmentation: An Approach to Produce Large and Complex Designs. Proceedings of CAD'19, Singapore, June 24-26, 2019, 019-043. DOI: 10.1473/cadconf.2019.019-043
- 13) He, Y., Camburn, B. A., Luo, J., Yang, M. & Wood, K. L. Visual sensemaking of massive crowdsourced data for design ideation. International Conference on Engineering Design, Delft, Netherlands.
- 14) Camburn, B. A., Ismail, E., Perez, K. B., Lauff, C. A., and Wood, K. L. (2019) Additive Manufacture of Fibre-Reinforced Structures: Design Process and Principles. Paper presented at the ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Anaheim.
- 15) Lauff, C. A., Perez, K. B., Camburn, B. A., and Wood, K. L. (2019) Additive Manufacturing (AM) Principle Cards. ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference Design Tool Showcase, Anaheim. (<https://www.dimodules.com/amcards>)
- 16) Perez, K. B., Lauff, C. A., Camburn, B. A., and Wood, K. L. (2019) Design Innovation with Additive Manufacturing: A Methodology. Paper presented at the ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Anaheim.
- 17) Lauff, C. A., Perez, K. B., Camburn, B. A., and Wood, K. L. (2019) Design Principle Cards: Toolset to Support Innovations with Additive Manufacturing. Paper presented at the ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Anaheim.
- 18) Camburn, B. A., Swee, A., Silva, A., Wood, K. (2019) States of Making: A Study of Architectural Sites, State Transitions, and Making, *FabLearn '19, New York, New York*.
- 19) He, Y., Camburn, B. A., Jianxi, L., Yang, M., Wood, K. (2019) Visual Sensemaking of Massive Crowdsourced Data for Design Ideation, *International Conference on Engineering Design, ICED '19, Denmark*
- 20) Camburn, B. A., Yuejun, H., Jianxi, L., Wood, K. (2018) Exploring the Automated Synthesis of Design Concepts. Design Science Research Conference, Montreal
- 21) Camburn, B. A., Arlitt, R., Perez, K. B., Anderson, D. S., Choo, P. K., Lim, T., Gilmour, A., & Wood, K. L. (2017). Design Prototyping of Systems. Paper presented at the ICED 2017, Vancouver.
- 22) Camburn, B. A., Auernhammer, J. M., Sng, K. H. E., Mignone, P. J., Arlitt, R. M., Perez, K. B., Huang, Z., Basnet, S., Blessing, L. T., & Wood, K. L. (2017). Design Innovation: A Study of Integrated Practice. Paper presented at the ASME 2017 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.
- 23) Sng, K., Raviselvam, S., Anderson, D., Blessing, L., Camburn, B. A., & Wood, K. L. (2017). A Design Case Study: Transferring Design Processes and Prototyping Principles into Industry for Rapid Response and User Impact. Paper presented at the Proceedings of the 21st International Conference on Engineering Design – ICED 2017, Vancouver, Canada.
- 24) Lim, S. Y. C., Camburn, B. A., Moreno, D., Huang, Z., & Wood, K. (2016). Design Concept Structures in Massive Group Ideation. Paper presented at the ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.
- 25) Perez, B., Camburn, B. A., & Wood, K. (2016). Design Inspiration During Ideation and Its Effects. Paper presented at the DS86: Proceedings of The Fourth International Conference on Design Creativity, Atlanta, GA, USA.
- 26) Camburn, B. A., Otto, K., Jensen, D., Crawford, R., & Wood, K. (2015). Designing Biologically Inspired Leaf Structures: Computational Geometric Transport Analysis of Volume-to-Point Flow Channels. *Engineering with Computers*, 31(2), 361-374.
- 27) Camburn, B. A., Jensen, D., Crawford, R., Otto, K., & Wood, K. (2015). Evaluation of a Strategic Method to Improve Prototype Performance with Reduced Cost and Fabrication Time. Paper presented at the 20th International Conference on Engineering Design (ICED 15), Milan.
- 28) Camburn, B. A., Sng, K. H., Perez, K. B., Otto, K., Wood, K. L., Jensen, D., & Crawford, R. (2015). The Way Makers Prototype: Principles of Diy Design. Paper presented at the ASME 2015 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Boston.
- 29) Choo, P. K., Lou, Z. N., Camburn, B. A., Wood, K. L., Koo, B., & Grey, F. (2014). Ideation Methods: A First Study on Measured Outcomes with Personality Type. Paper presented at the ASME 2014 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Buffalo.

- 30) Dunlap, B. U., Hamon, C. L., Camburn, B. A., Crawford, R. H., Jensen, D. D., Green, M. G., Otto, K., & Wood, K. L. (2014). Heuristics-Based Prototyping Strategy Formation: Development and Testing of a New Prototyping Planning Tool. Paper presented at the ASME 2014 International Mechanical Engineering Congress and Exposition, Montreal, Canada.
- 31) Hamon, C. L., Green, M. G., Dunlap, B., Camburn, B. A., Crawford, R. H., & Jensen, D. D. (2014). Virtual or Physical Prototypes Development and Testing of a Prototyping Planning Tool. Paper presented at the ASEE Annual Conference and Exposition, Indianapolis, IL.
- 32) Otto, K., Camburn, B. A., Wood, K. L., Nannicini, G., Bouffanais, R., Kyoseva, E., Yong, J. W. H., Simpson, R. E., & Mathur, A. P. (2014). Integrated 2d Design in the Curriculum: Effectiveness of Cross-Subject Engineering Challenges. Paper presented at the American Society for Engineering Education, Annual Conference, Indianapolis, IN.
- 33) Telenko, C., Camburn, B. A., Hölttä-Otto, K., Wood, K., & Otto, K. (2014). Designettes: New Approaches to Multidisciplinary Engineering Design Education. Paper presented at the ASME 2014 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Buffalo.
- 34) Camburn, B. A., Dunlap, B. U., Kuhr, R., Viswanathan, V. K., Linsey, J. S., Jensen, D. D., Crawford, R. H., Otto, K., & Wood, K. L. (2013). Methods for Prototyping Strategies in Conceptual Phases of Design: Framework and Experimental Assessment. Paper presented at the ASME 2013 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Portland.
- 35) Camburn, B. A., Dunlap, B. U., Viswanathan, V. K., Linsey, J. S., Jensen, D. D., Crawford, R. H., Otto, K., & Wood, K. L. (2013). Connecting Design Problem Characteristics to Prototyping Choices to Form a Prototyping Strategy. Paper presented at the ASEE Annual Conference and Exposition, Atlanta, GA.
- 36) Lucero, B., Viswanathan, V., Linsey, J., Turner, C., Camburn, B. A., Dunlap, B., & Kuhr, R. (2013). Metaanalogy through Performance Specification. Paper presented at the ASME International Design Engineering Technical Conferences, Portland, OR.
- 37) Camburn, B. A., Wood, K., & Crawford, R. (2012). Novel Topological Approach to Designing Flow Channels. Paper presented at the 14th International Design Engineering Technical Conference, Chicago, IL, Aug.
- 38) Camburn, B. A., Wood, K., Crawford, R., Robbins, J., Jensen, D., & Patel, A. (2012). Advances in Transformational Design: Correlating Context Evaluation to Quality Feasibility and Novelty. Paper presented at the ASME 2012 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.
- 39) Camburn, B. A., Wood, K. L., & Jensen, D. D. (2011). Examination of a Method for Determining When to Develop Transformable Products through Design Studies. Paper presented at the American Society for Engineering Education.
- 40) Camburn, B. A., Guillemette, J., Crawford, R. H., Wood, K. L., Jensen, D. J., & Wood, J. J. (2010). When to Transform? Development of Indicators for Design Context Evaluation. Paper presented at the ASME 2010 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference.

IP GENERATION Patents:

Tectonic Origami, US Patent Application Publication, US 2018/0132583 A1
Magnetic Well Bearing, US Patent Pending, Sg Patent Pending: 10201506823S

Technology Disclosures:

UV-Aware, Technology Disclosure: SINGAPORE.A0003.0.09.AUG.2018
Multi-phase Material Deposition Process, Technology Disclosure: SINGAPORE.A0001.0.18.MAY.2016
VTOL UAV Rotor Lock Mechanism, Technology Disclosure: SINGAPORE.A0002.0.19.MAY.2016
Carbon Filament Injection 3D printer, Technology Disclosure in process, 2018

AWARDS

ASME-IDETC DTM Conference, Best Paper Award 2019: Evaluating Crowdsourced Design Concepts with Machine Learning
DESIGN STUDIES JOURNAL, Design Studies Award 2018: Principles of maker and DIY fabrication: enabling design prototypes at low cost
DBCS SG Mark Award 2017: Design Innovation Cards
DBCS SG Mark Award 2017: Gilmour Space Academy
MIT Club of Singapore Innovation Award 2016, Light Owl, non-lethal dazzler defence drone
Best Paper Nomination, 2015, ASME IDETC, "The Way Makers prototype: Principles of DIY Design"
Best Paper Award, 2014, ASME IDETC, "Designettes: New Approaches to Multidisciplinary Eng. Design Ed."
Graduate Fellowship Award, University of Texas, Cockrell School of Engineering, 2008-201

FUNDED RESEARCH GRANTS

Year	Title	Source	Funding	Role
ACADEMIC PROJECTS (2015-2018)				
2018	DI Guidance Proposal for LTA	LTA	\$ 358,492.80 SGD	Project lead
2018	Design Innovation for Automation System	Aqua	\$ 155,488.40 SGD	Co-PI
2017	Additive Manufacturing for Composite Aerospace Applications	NAMIC	\$ 525,260.00 SGD	Chief Engineer
2017	Design Innovation Services for New HR, Finance, and Medical Hub	Sg. Gov.	\$ 93,465.00 SGD	Project lead
2017	Advances in Unmanned-Systems, Human-Machine Interfaces and Technology Development for Reducing Workforce	Sg. Gov.	\$ 240,000.00 SGD	Drafted proposal
2016	Design Thinking: Prototyping & User Testing Training Workshop	MOE	\$ 16,200.00 SGD	Project lead
2015	Design Consultation: Design Innovation Course	NDA	\$ 244,733.00 SGD	Instructor
2015	Design Consultation Medical Centre Design	NDA	\$ 77,040.00 SGD	Project lead
		TOTAL	\$ 1,710,679.20 SGD	
INDUSTRIAL PROJECTS (2016-2018)				
2018	Main Sequence Ventures Series B Investment, Recipient: Gilmour	VC	\$ 13,700,000.00 USD	Director
2017	Black Bird (lead), Series A Investment, Recipient: Gilmour Space	VC	\$ 3,700,000.00 USD	Head of R&D
2017	Queensland Australia R&D Tax Offset Grant, Recipient: Gilmour	Au. Gov.	\$ 330,000.00 USD	Head of R&D
2016	Economic Development Board of Singapore, Aerospace Division (EDB, Sg), Seed Funding, Recipient: Gilmour Space	EDB	\$ 1,900,00.00 USD	Chief Engineer
		TOTAL	\$ 19,300,000.00 USD	