



**Project brief: 3D Printing Design Internship with PUSPADI**

**Subject discipline:** Biomedical Engineering, Duke University.

**Organization background:** PUSPADI Bali is committed to supporting over 4,900 people with high quality prosthetic legs, mobility aids and wheelchairs to people with disabilities.

Puspadi Bali has a workshop where they produce and provide prosthetic and orthotic mobility aids including leg (above and below knee) and foot prostheses, braces, ankle foot orthoses, foot orthoses, back slabs, and orthopedic shoes. Many of their clients require mobility aids due to cerebral palsy, polio and amputations. Children need a new prosthesis or orthosis every 6 to 12 months, and adults will need a new one on average every 2 years. These services are so far helping people with disabilities in Bali and East Indonesia do not need to travel to Java to get a prosthetic or maintenance— a financial difficulty for even a middle income family.

**Internship objectives:**

- The organization has the potential to attract more in terms of funding and is looking for research, design and development to support its funding applications.

**Key internship activities:**

- Research new designs for prosthetics that are suitable for faster, more efficient manufacturing e.g 3D printing.
- Identify areas where Puspadi could utilize new manufacturing options.
- Research software and hardware options that could potentially be utilized by the nonprofit.
- Identify the cost of using new technologies (e.g. 3D printing new types of prosthetics) to solve different kinds of problems for clients.
- Find out what other organizations are doing that are attracting funding. Analyze their annual reports and look for descriptions on funding applications.
- Produce compelling charts, tables and graphs that can be used to support PUSPADI's applications for funding.
- Produce designs for a prototype and make recommendations to PUSPADI management.