

SIMON FRASER UNIVERSITY

Office of the Vice-President, Academic

MEMORANDUM

To: Senate
From: J.M. Munro, Chair, Senate Committee on Academic Planning
Subject: Centre for Human Independence Engineering
Date: January 18, 1994

At its meeting on January 12, 1994, the Senate Committee on Academic Planning recommended the establishment of the Centre for Human Independence Engineering.

Motion: "That Senate approve and recommend to the Board of Governors the establishment of the Centre for Human Independence Engineering and the granting of a Charter to the Centre under the terms of Policy R.40.01."



**SIMON FRASER UNIVERSITY
OFFICE OF THE VICE-PRESIDENT, RESEARCH
MEMORANDUM**

To: Alison Watt
Secretary, Senate Committee
on Academic Planning (SCAP)

From: Bruce P. Clayman
John M. Munro

Re: Centre for Human Independence
Engineering

Date: January 12, 1994

Attached is a proposal from Dr. Ron Marteniuk, Dean, Faculty of Applied Sciences, to establish a Centre for Human Independence Engineering.

The Governing Committee for Centres and Institutes recommends that the Centre be granted approval by SCAP. Once approved by SCAP, the proposal is to be forwarded to Senate, followed by submission to the Board of Governors.

Governing Committee:



Bruce P. Clayman
Vice-President, Research
(Acting)



John M. Munro
Vice-President, Academic

M E M O R A N D U M
S I M O N F R A S E R U N I V E R S I T Y
F A C U L T Y O F A P P L I E D S C I E N C E S

SCAP 94 - 1

DATE: December 20, 1993
TO: Bruce Clayman, Vice-President Research, and Jock Munro, Vice-President Academic
University's Governing Committee for Centres
FROM: Ron Marteniuk, Dean, Faculty of Applied Sciences
RE: Proposal to Establish a Centre for Human Independence Engineering

I am very pleased to submit on behalf of nineteen faculty a proposal for the establishment of a Centre for Human Independence Engineering. I have read the proposal and am in full support of it. In essence, I highly recommend it to you for your approval.



Ron Marteniuk, Dean
Faculty of Applied Sciences

RM/lc

Enclosure

cc: J. Curry, Associate Director, University/Industry Liaison Office
T. Calvert, Director, Research and Computing, Faculty of Applied Sciences
A. Liestman, Director, School of Computing Science
J. Cavers, Director, School of Engineering Science
A. Hoffer, Director, School of Kinesiology
Founding Members:
S. Atkins, School of Computing Science
T. Calvert, School of Computing Science
J. Weinkam, School of Computing Science
J. Cavers, School of Engineering Science
J. Dill, School of Engineering Science
V. Cuperman, School of Engineering Science
A. Leung, School of Engineering Science
A. Rawicz, School of Engineering Science
W. Gruver, School of Engineering Science
G. Gutman, Gerontology Research Centre
E. Banister, School of Kinesiology
P. Bawa, School of Kinesiology
A. Chapman, School of Kinesiology
A. Hoffer, School of Kinesiology
I. Mekjavic, School of Kinesiology
T. Milner, School of Kinesiology
J. Morrison, School of Kinesiology
W. Parkhouse, School of Kinesiology
T. Richardson, School of Kinesiology

SIMON FRASER UNIVERSITY
CENTRE FOR SYSTEMS SCIENCE
MEMORANDUM

To: Dr. Ron Marteniuk, Dean
Faculty of Applied Sciences

From: Tom Calvert
Director, CSS

Date: 24 November 1993

Subject: Centre for Human Independence Engineering

On behalf of 19 faculty, I am happy to forward for your approval the proposal for the formal establishment of the *Centre for Human Independence Engineering*. The 19 faculty named in the proposal will be the founding members of the Centre when it is established.

This proposal is the result of extensive discussion among faculty in Computing Science, Engineering Science, Gerontology and Kinesiology, although the greatest interaction is between Engineering Science and Kinesiology. The research focus of the proposed Centre is biomedical engineering, particularly as it applies to the rehabilitation and restoration of function across the human life span. The focus on these aspects of biomedical engineering represents a conscious choice by the faculty proposing the Centre. There are some of us who have research interests in the application of biomedical engineering to clinical medicine - those aspects are not excluded by the terms of reference, but they do not represent the central focus.

We look forward to the formal establishment of the Centre. Please let me know if you have any questions.

TWC:sj
Encl.

cc: Founding members
J. Curry



RECEIVED
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FACULTY OF
APPLIED SCIENCES

2.

**Simon Fraser University
Faculty of Applied Sciences**

**PROPOSAL FOR
CENTRE FOR HUMAN INDEPENDENCE ENGINEERING**

This Centre fosters basic and applied research focused on the rehabilitation and restoration of function across the human life span. The centre will serve as a resource base for collaborative and multidisciplinary research.

The Centre will be a schedule A centre. The administrative officer will be the Dean of Applied Sciences.

The Director of the Centre, nominated, and ratified by the members of the Centre and recommended by the Dean of Applied Sciences, will be a full time employee of Simon Fraser University. The Director will be appointed by the President, upon recommendation of the Governing Committee for Centres. The term of the Director will be for three years, renewable.

The Director shall submit an annual report on all Centre activities, and a financial statement showing all revenues and expenditures for the twelve (12) months ending March 31 of each year, no later than June 30 of each year.

The Centre will act in accordance with all university policies, and in a manner consistent with the goals and objectives of Simon Fraser University.

Membership shall be by application to the Director, and a majority vote of the membership, subject to appeal (for Simon Fraser University personnel only). Membership shall be for a three (3) year term, renewable at the discretion of the Director.

An Advisory Board representing a cross section of university administration, research, industry, and government personnel, will be formed to provide guidance to the Centre.

**PROPOSAL FOR
CENTRE FOR HUMAN INDEPENDENCE ENGINEERING
BACKGROUND INFORMATION**

INTRODUCTION

The goal of this centre is to foster basic and applied research focussed on the rehabilitation and restoration of function across the human lifespan. The centre is a team whose members come from a number of schools and departments within S.F.U. These include:

- Computing Science
- Engineering Science
- Gerontology
- Kinesiology

The Centre will provide an "umbrella" for the numerous projects that the members of the Centre will be engaged in. All projects will generally be directed in some way to "rehabilitation and restoration of independent use of impaired functions." They will include:

1. Developing and possibly marketing assistive devices and/or robots that would help people with disabilities and/or elderly in everyday life.
2. Restoring voluntary use of paralyzed limbs using implantable transducers and electrodes.
3. Analyzing and observing the application of assistive devices in a "living" laboratory environment. In other words, the daily lives of people who need assistive devices will be monitored to assess whether these devices are successful, non-successful or need modification.

As well as co-ordinating these "applied" research projects, the Centre will also foster research of fundamental phenomena within our focus. Such projects will include:

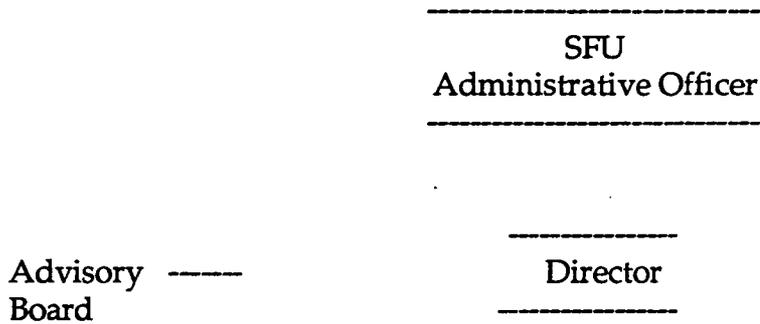
1. Muscle properties
2. Human reflex research
3. Neuromuscular plasticity and adaptation research

OBJECTIVES

Consistent with the goals and objectives of Simon Fraser University, the particular objectives of the Centre are as follows:

1. To stimulate, encourage, and enhance rehabilitation and restoration research and development, by providing a focus and resource base for such collaborative and multi-disciplinary research.
2. To identify and articulate priorities for the application of independence engineering which will bring the greatest benefit through scientific research, and the creation of devices to aid human health, safety, and comfort with the most effective use of resources.
3. To co-ordinate a number of research projects under the "umbrella" of independence engineering at S.F.U.
4. To promote the development of future research and development personnel through a graduate program prepared in conjunction with appropriate schools and departments.
5. To promote the dissemination of knowledge in the broader community through short courses and seminars in cooperation with Continuing Education, and the provision of consulting services to industry.
6. To establish connections with other research groups in the business community and other universities.

ORGANIZATIONAL STRUCTURE



MEMBERS

TERMS OF REFERENCE & MEMBERSHIP

1. Administrative Officer

- * Under Simon Fraser University policy R 40.01 for Centres and Institutes, the Centre will be a Schedule A centre with the Dean of Applied Sciences as the Administrative Officer.

2. Director

- * The Director is a full-time employee of Simon Fraser University, recommended by the Administrative officer. The Dean of Applied Sciences will use SFU Policy A 13.02 as a guide in identifying a person to be recommended as Director. The principle in appointing a Director will be that the recommended person will be nominated, elected and recommended by members of the Centre, through the Dean of Applied Sciences, to the Governing Committee for Centres.
- * The Director's term will be for a duration of three years, renewable.
- * The Director approves all contracts to be undertaken in the name of the Centre, in conjunction with the Administrative officer.

- The Director submits an annual report on Centre activities, including a financial statement, to the Administrative Officer for the 12 months ending March 31, no later than June 30.
- At least twice a year, the Director calls a meeting of the membership to discuss policy and direction of the Centre, and any other concerns of general import.

3. Members

- Membership shall be by application to the Director, and a majority vote of the membership, subject to appeal (for Simon Fraser University personnel only) to the Administrative Officer, whose decision shall be final.
- Membership shall be for a three (3) year term, renewable at the discretion of the Director.
- The Centre shall encourage the widest possible membership of qualified researchers, to promote the application of independence engineering techniques in as many fields as possible, and to encourage the cross-fertilization of ideas.
- Any member may withdraw from the Centre by delivering a written letter of resignation to the Director of the Centre.

4. Advisory Board

- The members of the Advisory Board represent a cross section of university administration, research, industry, and government personnel assembled to provide guidance to the Centre.
- The primary task of the Advisory Board is to advise members of the Centre on research priorities.
- All Advisory Board meetings are open, and Centre members are encouraged to attend.
- Advisory Board membership shall consist of: the Administrative Officer, the Centre Director, the FAS Director of Research and Computing, two corporate members, two external researchers, one provincial government representative, one federal government representative, and such others as may be deemed capable of making an exceptional contribution to the activities of the Board.

- Invitations for membership are issued at the sole discretion of the Centre Director, except for those positions specifically designated for Simon Fraser personnel.
- Membership is for a three (3) year renewable term, except for designated personnel.
- The Advisory Board bears no legal responsibility for the actions of the Centre and exercises no direct control over the actions of the Director, Centre members, or staff.

MEMBERSHIP

The charter members of the Centre are listed below. Expansion of the membership through joint research with colleagues in other institutions and research fields is a high priority.

Computing Science:

S. Atkins
T. Calvert
J. Weinkam

Engineering Science:

J. Cavers
J. Dill
V. Cuperman
A. Leung
A. Rawicz
W. Gruver

Gerontology:

G. Gutman

Kinesiology:

E. Banister
P. Bawa
A. Chapman
A. Hoffer
I. Mekjavic
T. Milner
J. Morrison
W. Parkhouse
T. Richardson

AFFILIATIONS

Since collaboration is a primary goal of the Centre, affiliations with other institutions will be sought, where such affiliation brings contact with exceptional research. This particularly holds a true outside North America, where frequent casual contact is less likely. Preliminary inquiries have been made, and interest is evident.

BUDGET

The Centre initially requires no budget save for minor publicity costs, since research activities utilize existing facilities, personnel, and funding. However as the Centre grows, several objectives require funding over and above existing levels. These include exchange of personnel with other institutions, possible establishment of a research chair for the director, maintenance and use of new capital equipment and a new, larger research facility.

Start-up funding from the Centre for Systems Science is covering the initial costs associated with organizing the Centre. All subsequent funding for the Centre, which is incremental to existing levels of support, should come from sources outside Simon Fraser University. The exception being the normal internal applications for funding to which all personnel, groups of personnel, and institutes are entitled to apply.