

CONDUCTING
RESEARCH

Sandeep Bhagwati,
one of Concordia's
score of research chairs



U N I V E R S I T Y M A G A Z I N E

Concordia

What do generating energy through osmosis, analyzing the performance of small-capital equities, exploring hormonal shifts during lactation and developing software that can learn to improvise specific styles of music have in common? If you guessed that all are areas of academic interest for Concordia professors, you are, of course, correct. But the full answer is that the faculty members in question all hold prestigious research chairs that support their investigations.

“Research chairs help provide resources, manpower and opportunities for professional exchanges that facilitate exploration and discovery, and they are unbelievably important to Concordia’s research profile,” says Kristina Ohrvall, associate director of Research Development in Concordia’s Office of Research. “Chairholders represent our top researchers, in terms of publications, training of students and contributions to advancing knowledge.”

Research chairs come in different flavours. Under the federal government’s

SITTING PRETTY: RESEARCH CHAIRS OF DISTINCTION

Canada Research Chair (CRC) program, launched in 1999 to attract top scholars to Canadian universities and to keep them there, Concordia is allotted 28 chairs, divided into two categories: Tier 1, which funds \$200,000 annually for a seven-year term, for senior researchers; and Tier 2, which funds \$100,000 annually for five years, for researchers earlier in their careers.

Concordia committed its CRC program to attract new faculty members. Therefore, in 2000 the university

Concordia’s research chair programs—funded by government, the university or donors—play a key role in attracting and retaining top scholars working on diverse and important projects. We introduce you to four of Concordia’s finest.

By Patrick McDonagh

created the Concordia University Research Chair (CURC) program to retain high-profile academics already on board. The program mirrors CRC’s two tiers (albeit with less money) and currently supports 44 chairholders. (With a fixed amount of funding, the number of chairs shifts according to how many are Tier 1 and 2.)

In addition, Industrial Research Chairs are sponsored by the Natural Sciences and Engineering Research Council in collaboration with industry partners; currently, Concordia has one NSERC-IRC (as they are known)—Electrical and Computer Engineering professor Pragasen Pillay (see his profile on page 10)—and plans are in the works for more. Finally, endowed chairs are created by independent donors wishing to support research in specific areas; the number of these also varies, as many of the endowed chairs are limited to terms of five, seven or 10 years, with funding levels negotiated between the donor and the university.

We profile four of Concordia’s research chairs.



SANDEEP BHAGWATI, IN THE MATRALAB, IS A COMPOSER, THEATRE DIRECTOR AND CONCEPTUAL ARTIST. HE SPENT MUCH OF THE PAST FALL COMPOSING A SYMPHONIC, 45-MINUTE WORK FOR SIX SINGERS AND LARGE ORCHESTRA FOR THE 2012 ECLAT FESTIVAL IN STUTTGART, GERMANY, AND THIS WINTER HE WILL CREATE THE 2012 SYMPHONIES PORTUAIRES, MONTREAL'S ANNUAL HARBOUR SYMPHONY FOR SHIPS.

INTER-X MAN:

SANDEEP BHAGWATI

I'm interested in work that is interdisciplinary, intermedia, intercultural and interactive.

Hence the 'Inter-X' in my chair's title," explains Sandeep Bhagwati, who came to Concordia in 2006 as the Canada Research Chair (Tier 2) in Inter-X Art Practice and Theory. His CRC has just been renewed for a second five-year term.

Bhagwati, a professor cross-appointed to the departments of Theatre and Music in the Faculty of Fine Arts, carries out much of his research on new artistic practices in the **matralab**, a high-tech facility in the Engineering, Computer Science and Visual Arts Integrated Complex. He says the lab, established with financial help from his CRC, "has made a huge difference to the scope of the projects I can pursue. Graduate and post-doctoral students from around the world, as well as internationally known artists and musicians, want to come here because the **matralab** provides a nexus between art and research. There are a lot of technology labs around, but not many where you can create art in new ways."

One product of Bhagwati's research is an interactive music environment dubbed *Native Alien*, based on software developed at the Paris-based Institut de Recherche et Coordination Acoustique/Musique (IRCAM). The software analyzes the patterns of musicians as they improvise, and in a few minutes is able

so that it learns different styles, allowing Bhagwati and his collaborators to create a catalogue of compositional strategies. The process reflects what Bhagwati calls "comprovisation," a fusion of composition and improvisation that informs much of the **matralab**'s research. "We are looking for new ways to create fluid

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to emulate them, essentially turning the computer into an improvisation partner. "The IRCAM software makes music in its raw state, a bit like a pasta machine that produces an endless stream of flat lasagna," Bhagwati says. "In *Native Alien*, we're looking at ways to shape musical dramaturgies on the fly—more interesting forms of noodles, if you will."

His work involves inviting world-class virtuosos to play with the software

architectures of sound or art," he says. "Comprovisation' can prompt [live] performers to come up with music and stories they would never have imagined themselves—something you don't usually get in free improvisation."

Native Alien will enjoy its public debut in January at the Western Front in Vancouver. (Check out the *Native Alien* video on **matralab**'s website at matralab.hexagram.ca.)