

31 blackbird lane
aliso viejo, ca 92656
six@fiveplusone.net
949 525 2452

education

columbia university **school of engineering and applied science**
bachelor of science in applied mathematics expected may 2007

ongoing **formal** research

columbia university **department of earth and environmental engineering**
agent-based simulation of global water trade and scarcity

tasks: specify, construct, present, and refine an agent-based simulation of global water trade dynamics and related visualization tools

advisors: upmanu lall, tobias siegfried

in collaboration with: diego pontoriero, columbia university department of applied mathematics

columbia university **school of international and public affairs**
organizational structure, management, and change

tasks: provide a coherent synopsis of the state of academic understanding of managing knowledge and operations within and between government agencies, local and international NGOs, and private companies in the context of sustainable development in sub-Saharan Africa; analyze the operations of the Millennium Villages Project and make relevant recommendations

advisor: tanya heikkila

columbia university **department of civil engineering and engineering mechanics**
simulation of combined sewer overflow events

tasks: specify, construct, present, and refine a simulation of water flow over heterogeneous urban terrain and into a combined sewer system; accurately predict frequency of combined sewer overflow events; determine urban intervention strategies for reducing frequency of overflow events

advisors: patricia culligan, phil simmons

personal **research** interests

sustainability, development, and technology

questions: what does a sustainable 21st-century civilization look like? what infrastructures undergird its day-to-day functioning? what does it *feel* like? what political and civil actions will be required for these technologies to be deployed?

in conversation with: bruce sterling, adam greenfield, william mcdonough, alex steffen, etc.

organization and globalization; information architecture; management of firms and economics

questions: what changes are required in the nature of the firm to facilitate a transition to a sustainable global material infrastructure? the global implementation of a consistent and morally acceptable human rights regime?

in conversation with: saskia sassen, seyla benhabib, yochai benkler, barry schwartz, peter morville, etc.

intellectual property; art, communication, and the process of education

questions: does information really want to be free? which information? how can education be made relevant, effective, and universally accessible in an age of accelerating technological change, ecological damage, and human rights violations?

in conversation with: siva vaidhyanathan, lawrence lessig, cory doctorow, simon penny, charles stross, rasmus fleischer, etc.

past **research**

columbia university **millennium villages project**

papers:

[Connecting Kigali: The Northern Transport Corridor and railway development in East Africa](#) outlines the current status of transport infrastructure in the Kenya-Rwanda-Uganda-Burundi region, estimates future demand on the corridor, and sketches an economic feasibility analysis to demonstrate that enticing private investors to undertake construction of new railways—not just rehabilitation of existing ones—lies firmly within the realm of the possible.

[Constructing the rural-urban fabric: concept for a computational agent-based network model](#) explores analytic and semantic difficulties posed by the current approaches to studying interdependencies and interactions between rural and urban regions in developing economies, and develops a concept for addressing some of these difficulties.

advisors: vijay modi, pedro sanchez, cheryl palm

comap **mathematical contest in modeling 2006**

paper:

[Optimizing a handmove sprinkler system](#) presents a method for minimizing manpower expenditure while maximizing precipitation uniformity for anyone interested in watering a field with a handmove lateral sprinkler system. The paper received a rank of “Meritorious” (top 18 per cent out of approximately 800 submissions from international teams).

in collaboration with: diego pontoriero and joseph jailer-coley, columbia university department of applied mathematics

lamont-doherty earth observatory **ocean and climate physics group 2006 summer intern**

research: a sensitivity analysis of general circulation models to the parametrization of gas exchange across the sea-air interface

in collaboration with: chris zappa, samar khatiwala

current **activist involvement**

themes of activist engagement: institutional transparency and accountability; construction of effective spaces for dialogue and mechanisms for collaboration; minimization of unnecessarily redundant efforts

columbia university **environment/social justice space**

[informal liaison, advisor](#)

activities: attempt to make the columbia community and administration aware of the usually “externalized” social and environmental impacts of its day-to-day operations; encourage decision- and policymakers to implement policies to mitigate and reverse these impacts, and to engage stakeholders in the construction of future policies; attempt to induce other students to do the same

groups and initiatives: engineers without borders, earth coalition, barnard earth, eco-reps, green umbrella, university housing and dining, office of environmental stewardship, facilities management, symposium house, core foods, food sustainability project, engineering student council, columbia college student council, partnership for international development, etc.

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current **activist involvement** (cont'd.)

columbia daily spectator

opinion columnist

activity: write a biweekly column, "un/sustainable futures," about sustainability, development, transparency, technology, and related themes

"un/sustainable futures" has run twice as of this writing (02/13/2007) and is linked at fiveplusone.net.

columbia university **earth institute**

publication designer, general advisor

the earth institute is preparing to launch a new online journal for presenting and discussing graduate and undergraduate research and reflection related to sustainable development and the earth institute's cross-cutting themes (climate and society; poverty; water; energy; urbanization; hazards; ecosystems; food, ecology, and nutrition; and health).

in collaboration with: anubha agarwal, alidad damooei, louise rosen

confire the network for emerging social entrepreneurs

member, board of directors; website lead writer

participated in launch preparations for confire, the international non-profit network for fostering social entrepreneurship. further development on the project is on hiatus pending possible acquisition by **net impact** and closer collaboration with **startingbloc** and **oikos international**.

past **activities**

- 2006 fellow, **startingbloc** institute for social innovation
- 2005 instructor, physics and astronomy, **university of california, irvine** gifted students academy
- 2005 participant, sea education association **sea semester** program
- 2004 business development for **protégé publishing**
- 2004 summer sales representative, columbia university **campus pages**
- 2003-04 editorial board member, **columbia review**
- 2003-04 competing member, columbia university **tae kwon do club**
- 2003-04 tutor, columbia university **tutoring and translating agency**
- 2003 laboratory assistant, columbia university **center for integrated science and engineering**
- 2002-03 founder and instructor, stevenson school **martial arts club**
- 2002-03 editor-in-chief, stevenson school **newspaper**
- 2001 first degree black belt, tae kwon do; assistant instructor, **us tae kwon do center**

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*tool*kit

proficient	fluent	native
Java	Photoshop	MATLAB
PHP		LaTeX
*nix		XHTML+CSS
Spanish		Pagemaker/InDesign
		MS Office Suite

*grade*pointaverage

3.649

*standardized*testscores

graduate record examination

quantitative **700** out of 800
 verbal **800**
 analytical writing **5.5** out of 6

sat ii

math iic **770** out of 800
 writing **800**
 physics **800**

sat i

math **690** out of 800
 verbal **750**