

A Piece of Work

a machine-made Hamlet by Annie Dorsen



What a piece of work is a man! How noble in reason. How infinite in faculties, in form and moving how express and admirable, in action how like angel, in apprehension how like a God! The beauty of the world, the paragon of animals -- and yet, to me, what is this quintessence of dust?

Mixing live performance with algorithms and interfaces, *A Piece of Work* flips the switch between man and machine in a digital Hamlet for a post-humanist age. The spectator is absorbed in a swirl of connections amongst memory, language and technology, implicating both the past and future of theatre itself.

New scenes, songs, scores and visuals emerge from an intricate and ingeniously programmed web of technology that uses Shakespeare's original text as data.

Virtuosic actor Scott Shepherd or the legendary Joan MacIntosh (who alternate in the role) perform alongside computers, automated lighting systems, sound and video that have all been programmed to generate a new production of the play nightly.



The Production

Markov chains, or more precisely N-gram models, are the basis for this project. They are “finite state machines.” That is, they don’t grow or learn; they are memory-less. Basically, they analyze sequences of words appearing in a given source text – and they can generate new text according to the frequency or infrequency of those patterns. Each time the program runs, it makes new, probabilistic choices, which can be surprisingly different from night to night. But each choice is conditional only upon the current state, not upon anything that may have happened before.

They have a wide variety of applications --from medicine to economics to music to search engines and data compression-- but it is this quality of operating in a continuous present that attracted me. Theatre often claims to aspire to such a state – but in practice it is a medium made of memory. That’s apparent in everything from its fascination with its own history, its reliance on recognizable action unfolding in time, its mode of production through repetition and the remembering of lines and moves, and its use of language, which in the moment of performance re-calls past situations and subjectivities and desires and needs.

The algorithms we use in this performance are simple -- they skip, sort, replace and sequence. They don’t know what they say, or what they said before. They don’t know what grief is, or revenge, or an entrance, or an exit. They make decision after decision, over and over, generating a non-stop flow of effects without causes, and causes without effects.

We have divided this performance into 5 parts, following the original five acts of Shakespeare: five passes through the text, using five distinct principles of algorithmic re-writing.

1. Excerpt 5% of the play by length, skipping through the scenes in order.
2. Sort lines of the play by keyword, snaking through the play, finding repetitions and echoes.
3. Parse all the soliloquies, looking for grammatical structures. Replace nouns with other noun and verbs with other verbs, group selections of the most-used grammatical phrases (determiner-adjective-noun, or preposition-determiner-verb).
4. Generate new scenes by re-sequencing words using Markov chaining.
5. Generate a new final scene (Act Five, Scene Two) by re-sequencing letters using Markov chaining.

Artistic Team

Director/Concept: Annie Dorsen

Performance: Scott Shepherd or Joan Macintosh

Systems Programmer: Mark Hansen

Associate Programmer: Dylan Fried

Scenic/Video: Jim Findlay

Sound and Network Design: Greg Beller

Lighting Design: Bruno Pocheron/Ruth Waldeyer

Additional Programming: Scott Shepherd/Paul Calley

Associate Video Design: Ryan Holsopple

Co-Producers and Funders

A Piece of Work is a co-production of BIT Teatergarasjen (Bergen), Black Box Teater (Oslo), Brooklyn Academy of Music (NYC), brut (Vienna), On the Boards (Seattle), and Theatre de la Villette (Paris). It is a House on Fire project, developed with the support of the Culture Programme of the European Union. Additional support provided by the City of Vienna, and by On the Boards through its Performance Production Program. *A Piece of Work* was developed in part at Live Arts Bard, the commissioning and residency program of the Richard B. Fisher Center for the Performing Arts at Bard College.

Touring Details

Personnel: 5 -7 people total

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| 5 New York | director + actor + sound/music + scenic/video (tbc) + producer (tbc) |
| 1 Berlin | lighting/technical director |
| 1 Chicago | computer programmer |

Shipping: N/A

We travel with all company-provided equipment, and therefore have no shipping costs. But please look closely at the attached technical rider. We do require that certain materials be provided and some light construction be completed on site.

Space:

Proscenium, black box, or flexible space. Capacity of 150 – 500 seats.

Video

Full length

<https://vimeo.com/85130322>

password: hamlet

filmed at BAM, December 2013 (this performance features Joan Macintosh)

Trailer

<https://vimeo.com/85806381>

Press

“Not only does Ms. Dorsen deconstruct the text in dizzying fashion — “It’s a little like if the Dadaists had their way with Shakespeare,” she said — but she has also outsourced the actual scrambling to computer codes and chatbots, creating what she calls “algorithmic theater.” Over the course of five acts, “Hamlet” is reconstituted in five distinct ways; sometimes it’s compressed into a fraction of its length, elsewhere individual lines are pulled radically out of disparate contexts.”

- Claudia La Rocco, *The New York Times* (preview) [[full article](#)]

“To be and not to be.” That was not exactly the question, last time I checked. But that errant conjunction is not the result of a slip of the actor’s tongue. [...] In the process, we in the audience are amusingly (or uncomfortably) restored to the state of excited disorientation we probably first felt when encountering the exotic syntax and language of Shakespeare.”

- Charles Isherwood, *The New York Times* (review) [[full article](#)]

“... mesmerizing, maddening, and agreeably peculiar. [...] Essentially, *A Piece of Work* [...] reveals our humanistic bias, how desperately we want to assign presence and intent even to mere lines of code.”

- Alexis Soloski, *The Village Voice* [[full article](#)]

“It is the arbitrariness of its inventions that leads us to new discoveries. It is simply astonishing how many bits and pieces from the computer-generated language sound familiar; proof of how deeply the text of Hamlet has penetrated all world languages. Sometimes the Hamlet-machine produces phrases that are without meaning, yet vie with the original in poetic beauty.”

- Joost Ramaer, *Theaterkrant* (NL) [[full article](#)]

Contact

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Artist Team

Annie Dorsen (Concept/Direction) is a writer and director who works in a variety of fields, including theatre, film, dance and, as of 2009, algorithmic performance. Most recently, her algorithmic Hamlet project, *A Piece of Work*, has been seen at On the Boards (Seattle), Brooklyn Academy of Music (NYC), Parc de la Villette (Paris), and others. In 2012 she made *Spokaoko*, a participatory karaoke project that uses political and historical speeches in place of pop songs. That work premiered as part of Steirischer Herbst's "Truth is Concrete" marathon, and has also performed at Crossing the Line Festival (NYC), at Black Box Theater (Oslo) and BIT Teatergarasjen (Bergen). Her first algorithmic theatre piece, *Hello Hi There*, premiered at Steirischer Herbst (Graz) in 2010, and has been presented at over 15 theaters and festivals in the US and Europe, as well as, in installation form, at Bitforms Gallery in New York. She is the co-creator of the 2008 Broadway musical *Passing Strange*, which she also directed. Spike Lee made a film of her production of the piece, which premiered at the Sundance Film Festival in 2009, and screened everywhere from the Tribeca Film Festival to subsequently screened at South by Southwest Film Festival and The Tribeca Film Festival, and was released theatrically by IFC in 2010 before being broadcast on PBS' Great Performances. Also in 2010, she collaborated with choreographer Anne Juren on *Magical* (premiere at ImPulsTanz Festival Vienna) and with Ms. Juren and DD Dorviller on *Pièce Sans Paroles* (brut Vienna and Rencontres Choréographiques Internationales Seine-St-Denis, Paris). She has collaborated often with musicians, including Questlove of The Roots on *Shuffle Culture* (BAM), Laura Karpman and Jessye Norman on *Ask Your Mama*, a setting of Langston Hughes' 1962 poem (Carnegie Hall) and with the string quartet ETHEL on *Truckstop*, also at BAM. Her pop-political performance project *Democracy in America* was presented at PS122 in 2008. Her short film, *I Miss*, originally the centerpiece of *Democracy in America*, has screened at American Film Institute Festival (AFI Fest), SXSW Film Festival, The New York Film Festival's "Views From the Avant-Garde" and the Nantucket Film Festival.

Mark Hansen (Systems Programmer) is the David and Helen Gurley Brown Professor of Journalism and the director of the Brown Institute for Media Innovation at Columbia University. Hansen joined Columbia in July of 2012, after a decade of shuttling between the west and east coasts. In Los Angeles, he held appointments in the Department of Statistics, the Department of Design Media Arts and the Department of Electrical Engineering at UCLA -- literally forming a triangulation of data, art and technology -- and was a Co-PI for the Center for Embedded Networked Sensing, an NSF Science and Technology Center devoted to the study of sensor networks. While in New York, Hansen was a long-standing visiting researcher at the New York Times R&D Lab and a consultant with HBO Sports. Hansen works with data in an essentially journalistic practice, crafting stories through algorithm, computation and visualization. In addition to his technical work, Hansen also has an active art practice involving the presentation of data for the public. His work with Ben Rubin at EAR Studio has been exhibited at the Museum of Modern Art in New York, the Whitney Museum, the Centro de Arte Reina Sofia, the London Science Museum, the Cartier Foundation in Paris, and the lobby of the New York Times building (permanent display) in Manhattan. Hansen holds a PhD and MA in Statistics from the University of California, Berkeley and a BS in Applied Math from the University of California, Davis.

Greg Beller (Sound & Network Design) is a former student of the Normale School and holds an aggregation in physics, two Masters degrees in music and a PhD in computer science. He works as a researcher, a teacher and a computer designer for digital arts. Since joining the

Analysis/Synthesis team at IRCAM, he has become interested in the musicality of the spoken voice. After working on speech synthesis and prosodic modeling, he presented a PhD thesis on generative models for expressivity and their applications for speech and music, especially through performance. He has co-organized the four conferences string EMUS on the Expressivity in Music and Speech. He takes part in a range of artistic projects as a music composer and as an artistic installation designer. He is currently computer-music designer at IRCAM where he works with composers (L. Francesconi, R. Cendo, J. Lenot, T. Murail, G. Aperghis, E. Canat De Chizy, R. Rivas...) and theater directors (L. Lagarde, J. Gamblin, M. Roy, C. Teste, E. Rousset, G. Vincent...) in the creation, realization and interpretation of their pieces.

Jim Findlay (Scenic/Video) works across specialties as a designer, director, performer and creator with a constellation of theater, performance and music groups. He lives and works in Brooklyn, NY. He was a founding member and primary collaborator in both the experimentally ground breaking Collapsible Giraffe and the internationally successful music/media performance company Accinosco/Cynthia Hopkins as well as being an associate artist with The Wooster Group since 1994 and a frequent collaborator with Ridge Theatre, Bang on a Can and Ralph Lemon.

Bruno Pocheron (Lighting Design) (born 1968) studied visual arts in France, lives in Berlin. He works internationally mostly as light designer, but also as technical director, set designer and sound designer. He initiated, with Isabelle Schad and Ben Anderson, the collaborative framework Good Work, concerned with the representation and perception of the body onstage and in society. He's currently involved in stage projects with Judith Depaule (Paris), Anne Juren (Wien), Alix Eynaudi (Wien) Jana Unmüssig (Berlin), An Kaler (Berlin/Wien), Martin Nachbar (Berlin) and Annie Dorsen (New York). He's co-organizing Wiesen55, a collective working space in Berlin-Wedding, and Gangplank, an open network focusing on inter-media communication, relations between technology and art, and cross-overs between the fields at play in contemporary performance-making. He develops open-source interfaces in PureData allowing fluid communication between lights, sound and video and researches the dramaturgical impact of these elements.

Ruth Waldeyer (Lighting Design) works as a Light/Sound designer, musician/performer, and thai boxing teacher. She has created light and sound design for numerous dance pieces (*i would like to kick out the names...if not, keep Clément Layes, Alice Chauchat, Frédéric Gies, Good Work - but nobody knows them anyways here, or?*), often working closely together with Bruno Pocheron and Florian Bach. She is a founding member of Gangplank - a group of light/sound/video designers, musicians, choreographers that investigates the intersections of technology and dramaturgy in the practice of making stage work, and a musician/performer with The King Anabels and The Best Intentions, currently with The Wedding Band and the operetta "The Swan Song." Radio features together with Uli Ertl for WDR, reboot.fm, raudio ausland. She also organizes festivals and technic bricolage workshops and provides technical direction for ausland/Berlin. Waldeyer studied Performing Arts at HBK Braunschweig with Anzu Furukawa and Marina Abramovic (Masters 2002).

Scott Shepherd (Performer) has worked with the Wooster Group since 1997, originating roles in *Troilus and Cressida*, *Vieux Carré*, *La Didone*, *Hamlet*, *Poor Theater* (Obie Award, Bessie Award) and *To You, The Birdie!* and appearing in revivals of *North Atlantic*, *The Emperor Jones*, *Brace Up!*, and *The Hairy Ape*. He has also performed extensively with Elevator Repair

Service, in *Gatz* (Obie Award, Elliot Norton Award), *No Great Society*, *Total Fictional Lie*, *Cab Legs*, *Shut Up I Tell You (I Said Shut Up I Tell You)*, and *McGurk: A Cautionary Tale*.

Joan MacIntosh (Performer) has had a distinguished career as an actress for over 45 years, performing leading roles on and off Broadway, in resident theaters throughout the U.S., and in Europe, Africa, and Asia. She was a founding member of The Performance Group, one of the premier experimental theater companies of the late 60's and 70's in New York, and won three OBIES, while in the Group, for her performances in *Dionysus in 69*, *The Tooth of Crime*, and *Commune*. She has also won an OBIE AWARD for SUSTAINED EXCELLENCE, for her work in the Off-Broadway theater in New York; the Drama Desk Award for her solitary performance in *Request Concert*; a Drama League Award and the Edinburgh Festival's Herald Angel Award for her performance in Ivo van Hove's production of *More Statelty Mansions*; and the Elliot Norton Award for her performance in Robert Woodruff's production of *Britannicus* at the A.R.T. She has won the JDR 3rd Fund grant for study and travel in India, Southeast Asia, Papua New Guinea and Japan; the USIA Grant for workshop presentations in Southeast Asia, India, Japan, and South Africa; and the Spencer Cherashore Grant to write *O Beloved*. MacIntosh is a Professor of Acting at Yale University, where she teaches and directs, she is writing a book about her experiences in the experimental theater, and she is a Fox Fellow.