



BERLIN  
SCHOOL OF  
MIND AND  
BRAIN

*A Double Issue on*  
BRAIN PLASTICITY AND  
LIFESPAN ONTOGENY  
*and*  
BRAIN DISORDERS  
AND MENTAL  
DYSFUNCTION

*Newsletter*  
Nº IV & V  
SEPTEMBER  
2011

## CONTENTS

### Brain Plasticity and Lifespan Ontogeny

- 1 *Editorial*  
by *Shu-Chen Li*

#### Questions & Answers

- 3 Myriam C. Sander  
5 Franziska Preusse  
7 Smadar Ovadia-Caro

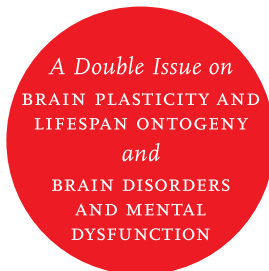
### Brain Disorders and Mental Dysfunction

- 9 *Editorial*  
by *Felix Bermpohl and Stephan Brandt*

#### Questions & Answers

- 11 Corinde Wiers  
14 Meri Blumenkron  
16 Phöbe Schmierer  
18 Nele Adler  
20 Saskia Köhler  
22 Lia Sanders  
24 Anne Pankow

Contact  
and Imprint



# *Brain Plasticity and Lifespan Ontogeny*

A defining feature of living organisms is their plasticity in adapting to changes. This applies to internal changes caused by neurobiological processes related to diseases and injuries or maturation and senescence as well as to external variations driven by environmental or experiential factors. Plasticity has traditionally been primarily considered a hallmark of individuals still maturing. However, evidence from cognitive training studies in lifespan research over the past two decades clearly indicates that plasticity is not a specific privilege of youth. Adults and the elderly still possess substantial reserve brain and cognitive potential, albeit plasticity in old age may be more limited.

Short-term disruptions in functions (e.g., loss of speech or motor abilities after brain injuries) or long-term gradual increases in demands on functions (e.g., adaptively adjusted task difficulty for raising performance levels in cognitive training or rehabilitative treatment) are potential triggers of plasticity. In either case, brain plasticity is driven by a mismatch between a person's current functional capacity and the experienced demands imposed by the environment. The degrees and manifestations of brain plasticity are co-determined by the extent of this supply-demand mismatch and the level of the person's intrinsic reserve potential. The latter may vary across brain systems, individuals, and age. 📌

*Editorial*  
by SHU-CHEN LI,  
faculty member  
of the Berlin  
School of Mind  
and Brain

Combining expertise from neurology (faculty members Angeles Flöel and Arno Villringer) and lifespan psychology (faculty members Shu-Chen Li and Ulman Lindenberger), research on brain plasticity and lifespan development at Berlin School of Mind and Brain aims at understanding disease- and senescence-related effects on brain plasticity at the neurochemical, anatomical, and functional levels. Potential doctoral or postdoctoral fellows will have the opportunities to combine brain imaging techniques and genomic methods with behavioral and cognitive training or rehabilitation therapies to study brain plasticity in different age or patient groups. Our current research covers a wide range of topics, including: (1) physical training, aging, and structural brain plasticity; (2) cognitive interventions, aging, and functional brain plasticity; (3) neuromodulation of brain plasticity; (4) brain plasticity and vascular risk factors; and (5) brain plasticity and neurorehabilitation. ●

# Q & A

MYRIAM C.  
SANDER

Q *What is your research topic?*

A I investigate the neural mechanisms that underlie age differences in working memory constraints. Working memory refers to our ability to maintain and manipulate a little amount of information for a short period of time. Based on behavioral studies, we know that this ability develops across childhood, peaks in young adulthood and shows a marked decline with advancing age. At the same time, maturational and senescent changes in the brain affect different brain regions of the working memory network differentially. I aim to understand how these neural changes relate to changes in working memory performance. I use event-related potentials and time-frequency analysis of electrophysiological recordings to better understand what happens in the brain.

Q *What classes from undergraduate study do you wish you could remember or wish you had taken?*

A I wish I had taken classes in computer sciences and mathematics. I think that content-wise one is able to catch up with a lot of topics quite quickly, but to learn how to explore large amounts of data sets and to reduce them to something meaningful requires methodological knowledge that is much harder to acquire. Skills in computer sciences and mathematics provide you with the necessary basis to do so. •



MYRIAM C. SANDER

Q *What do you find most interesting about your research?*

A I find it most interesting that our brain is plastic and can achieve the same performance in a variety of ways. For example, children often perform at the same level as young adults, but their brains work so differently. With advancing age, many brain regions show a marked decline and at the same time, there are many situations in which older adults do not perform so badly. I find it important to understand not only how a young and healthy brain works, but also how maturational and senescent changes shape neural functions.

Q *What do you like best about living in Berlin?*

A Of course, Berlin is a creative and lively city and offers many cultural opportunities to explore theaters, music, art ... but what I like most is that Berlin has so many different faces and that every borough has its own character. Especially in summer, when people spend more time outside, you don't have to go to the movies to be entertained quite well, you can just sit in a café and watch people passing by ... Another great way of enjoying Berlin is to take the bike and just ride through the city or to some lake nearby. ●

Q What motivated you to apply for the program at the Berlin School of Mind and Brain?

A I think graduate schools are a great place to get a structured PhD training. There are some things such as statistics or those soft skills courses offered that lend themselves better to group study with other doctoral students. Most labs cannot provide such comprehensive training as graduate schools can.

Since my area of research – educational neuroscience – is right at the interface of mind and brain sciences, the Berlin School of Mind and Brain was the right graduate school for me. What better place for me to study than a school with a faculty of experts in both fields?

Also, when I applied for the program I hoped to benefit from meeting other doctoral students. And I must say, I thoroughly enjoyed every journal club, talk and heated discussion I had with my fellow students and I learned a lot in the process.

Q What is your research topic?

A I do research in mathematical thinking and intelligence. More specifically, I want to find out why some school students do well in maths classes and others don't. Therefore, I study and compare task solving strategies and cerebral correlates of students who perform well and students who don't in those kinds of tasks. I do this with the help of fMRI and eye tracking while the students are busy solving the maths problems. Both fMRI and eye tracking help us understand performance differences above and beyond behavioral testing. The results from this research eventually allow us to develop and implement teaching strategies that enable all students to understand maths more easily, to perform better, and to have more fun in maths classes in the end. ✦

Q *What classes from undergraduate study do you wish you could remember or wish you had taken?*

A Definitely programming! If I had taken a programming class this would have spared me some painful self-taught lessons. It is so vital to have some basic programming skills when you do experimental work and for neuroscience data analysis.

Q *What do your parents think you are doing?*

A My family thinks that I am involved in the scientific study of the human brain and in so far they are right. But for some obscure reason they also think I advise medical doctors. I never suggested that I do, but perhaps this is because I am affiliated with Charité, which is a large university hospital. As long as it makes them happy I leave them in the dark about this misconception. ●



◆ FRANZISKA PREUSSE



◆ SMADAR OVADIA-CARO

**Q** *What motivated you to apply for the program at the Berlin School of Mind and Brain?*

**A** A friend of mine from UCL told me about the Women's Travel Awards. The program seemed interesting, so I applied and was accepted as an awardee. During my stay in Berlin, I had the opportunity to talk to some members of the Mind and Brain Faculty (Felix Bermpohl, Hauke Heekeren and Arno Villringer) as well as to students. I saw the research opportunities, the people, and a bit to the city itself. All these things encouraged me to apply. I was especially drawn to the structured nature of the program, i.e. the courses on offer as well as the possibility to conduct my research in collaboration with hospitals in the city.

**Q** *What is your research topic?*

**A** I am interested in changes in functional connectivity as measured by fMRI in patients following ischemic stroke.

**Q** *Which do you see as the challenges of an interdisciplinary study of the mind and brain?*

**A** One of the main challenges is communication; finding a common

language. People from different backgrounds speak different languages, at least to some extent, and tend to perceive problems differently. I think, however, that if there is a willingness on both sides to understand each other, there is always a way of bridging the gaps.

In my opinion, the advantage of an interdisciplinary program is the opportunity to approach a problem from more than one side – similar to using several camera angles when shooting a film. On top of that, meeting people from other fields simply makes life more interesting.

**Q** *What classes from undergraduate study do you wish you could remember or wish you had taken?*

**A** I think that being a researcher is an ongoing learning process that will – hopefully – never stop. Everything that you are exposed to has an influence and makes a contribution to your way of thinking. I thus have no regrets as for unfulfilled undergraduate courses, and even when I take the same course more than once, which may happen, I always learn something new from it. Courses are just a means of enhancing your reservoir of ideas. ♦

Q *What do your parents think you are doing?*

A Actually, my parents know exactly what I am doing. And not just my parents, but also all the other family members. That said, they are convinced – and there is no way of talking them out of it – that I am doing one of the most important jobs in the world. They are very happy for me and are very proud and although I would be away from home for 3 years, they strongly encouraged me to grasp the opportunity and go to Berlin to pursue my dreams.

Q *What do you like best about living in Berlin?*

A A lot of things. Many little things such as riding my bike through the Tiergarten, the many parks and green areas, the vast cultural offerings, especially art, wherever you go. I really enjoy living in a city that allows you to open up to new things. Berlin may not be beautiful in the traditional sense, but to me the city has a kind of rough beauty that I really like.

Q *How or where do you see your research applied?*

A The better we understand the dynamics of network interaction in the brain, the better we understand behavioral changes and vice versa. In my view, these are two sides of the same coin. In my specific topic of research, addressing these issues in patients following a stroke, what we learn about the network during the recovery process could have potential implications on treatment and rehabilitation. For example, candidate regions for TMS, looking at changes in the network following administration of certain drugs etc. But clearly these are long-term goals.

Q *How would you explain what you do to a non-expert?*

A Networks and interaction within networks are not specific to the brain and are present in many other aspects of our lives, biological as well as social. So actually, I think it is fairly easy to grasp and understand what I do. ●

# Brain Disorders and Mental Dysfunction

Mental dysfunctions and brain disorders are closely related phenomena, despite the fact that the details of this relationship remain as yet inadequately described. Until recently, the two phenomena have been dealt with rather independently by different schools of thought and different scientific approaches. Biologically-oriented psychology, psychiatry, and neurology attempt to link dysfunctions in cognitive performance with brain structure and pathology, but often without a description of a detailed underlying cognitive framework.

Modern research should aim to conceptually and empirically close the gap between these estranged approaches, to establish an integrated explanation for these disease phenomena from which successful therapies can evolve.

The Berlin School of Mind and Brain fully embraces this interdisciplinary perspective, valuing the properties of fundamental cognitive functions, as well as the neuronal underpinnings of their disturbance in neurological and psychiatric diseases. In order to adequately define mental dysfunctions, we must specify both the type and degree of alterations in mental functions and their underlying brain dysfunctions. Alterations in any of these functions can contribute to mental dysfunction and disease, including an altered experience of a coherent individual “self” and agency (e.g., in schizophrenia), impaired rational decision making (e.g., in lifestyle choices leading to addiction, obesity, etc.), and disturbed emotional well-being (e.g., in depression). ➤

*Editorial*  
by FELIX BERM-  
POHL AND  
STEPHAN BRANDT,  
faculty members  
of the Berlin  
School of Mind  
and Brain

Major tools used in this research include behavioral assessment, lesion studies and virtual lesion induction (transcranial magnetic stimulation), functional and structural neuroimaging as well as genetic testing. In addition to experimental work, we constructively address conceptual and philosophical issues, such as contemporary doubts that certain normative faculties are even within the scope of what can be investigated solely on an empirical basis.

The Berlin School of Mind and Brain offers a unique research and training environment for the study of the research topic “brain disorders and mental dysfunction”. The School’s faculty is comprised of distinguished scientists from leading clinical and neuroscience institutions in Berlin, approaching the topic from the perspective of the mind (e.g., philosophy of mind, linguistics, cognitive psychology) and of the brain (e.g., neurology, psychiatry, neurophysiology, computational neuroscience). ●

**Q** *What motivated you to apply for the program at the Berlin School of Mind and Brain?*

**A** I studied psychobiology and psychology, and enthusiastically enrolled in medical biology and philosophy last year as well. My days were sometimes confusing: during the day I learned how to handle mice in a laboratory and in the evening I was reflecting on epistemological questions of human sciences. The Berlin School of Mind and Brain is the perfect place to combine all my interests in one project. Here, neuroscientists are open-minded enough to concede that empirical science does not explain everything.

**Q** *What is your research topic?*

**A** My research topic is automatic processes in alcoholism. With neuroimaging and EEG, I study changes in brain activity after a computerised training task in which patients learn to 'control' their addiction. But the project may develop in many ways and I'm still hoping to set up a mouse study on translational effects of alcohol. Are baby mice with

fathers who drank a lot of alcohol affected without knowing the father, and without hard-wired genetics playing a role? I'm very interested in how gene expressions change over time and how gene folding might be passed on to offspring. I'm not sure, though, if three years is enough ...

**Q** *What classes from undergraduate study do you wish you could remember or wish you had taken?*

**A** I wish I remembered more from my neuroanatomy courses and also from the philosophy of science and cell biology. Two years ago, there was a class on microbe art which I unfortunately couldn't attend. Courses that would come in very handy now, but that I've always found ways to get around are programming, mathematic modeling, data analysis; anything with computers, basically. More history of science could have been good for me, too, but I'll try to look into it here in Berlin. ♦

Q *What do your parents think you are doing?*

A My dad thinks I'm doing hardcore genetic research and I leave it at that. He has never even touched a computer, so explaining the basis of MRI analyses would be too much of a hassle. My mom understands computers and brains far better, so she has a general idea.

Q *What do you find most interesting about your research?*

A It's fascinating how environment – drinking, other substances, learning, behavior itself – can influence brain processes and eventually may lead to changes in genetic expressions. Also, it is very puzzling why people we call addicts consciously declare they want to kick the habit but then fall back on it automatically when they enter a pub. I would like to understand how the brain is

involved in this self-destructive behavior, and hopefully work out a way to overcome it. There are interesting research projects on neuroimaging feedback mechanisms in addiction, in which patients learn to gain control over their brain activation while looking at pictures or watching a film craving for their particular drug. Learning to control the brain also poses an interesting philosophical question: Are human beings more than their brains?

Q *How would you explain what you do to a non-expert?*

A Most of the time I keep it as simple as possible: I study the effects of alcohol on the brain and want to develop mechanisms to overcome addiction. When I explain this in a bar, people take a worried look at their beer, sip and grin.

Q *What do you like best about living in Berlin?*

A You'll find charming, outgoing people to talk to on every street corner, that's great. Then there's the passion with which police officers and taxi drivers yell at bikers, or how people obey red lights even when there's no one around. I also like Tempelhof, the crankiness of some Berlin supermarket workers – they make me feel as if I'm the most positive person in the world. And, of course, there are the many parks, cafés, clubs, concerts, cinemas, museums, galleries, etc., etc.

Q *Something we forgot to ask? If you like, please include a fun "random fact" about yourself:*

A I adore talking in a foreign language because every stutter can be attributed to me not speaking correctly instead of not knowing what I'm talking about. I'm much shier in my mother tongue Dutch, really. ●

CORINDE WIERS



**Q** *What motivated you to apply for the program at the Berlin School of Mind and Brain?*

**A** I wanted the opportunity to combine my fascination with the human brain and language development in a single field of study. I was immediately drawn to the program's unique academic perspective, which allows researchers from various disciplines to work together and learn from each other.

**Q** *What is your research topic?*

**A** My research is concerned with the effects of autism on a specific receptive aspect of language development. By utilizing fMRI and ERP techniques I will be investigating how children with autism and children developing normally process emotional prosody, which is regarded to be one of the foundation skills of language development.

**Q** *How would you explain what you do to a non-expert?*

**A** I study how the child's brain understands speech expressed in different tones of voice. For example, the sentence: "It's raining outside" can be spoken in a happy or angry tone of voice and therefore express happiness or anger. By measuring how the brain registers and reads these differences in the tone of voice we can increase our understanding of autism.



MERI BLUMENKRON

Q *What do you find most interesting about your research?*

A The privilege to work with children with autism and research a language feature that is crucial to language development.

Q *How or where do you see your research applied?*

A The findings of this research may provide us with knowledge about additional early markers for the identification of children at risk for autism. Also, the investigation of the brain networks and neurophysiological markers for processing of emotional prosody will provide us with a better understanding of the behavioral abnormalities of the social mind in autism.

Q *In your opinion, what are the challenges of an interdisciplinary study of the mind and brain?*

A This is a complex question because it deals with individual and collaborative scientific efforts. From the individual perspective of the researcher, the interdisciplinary study of the mind and brain will require great mental flexibility and a Renaissance-like approach to knowledge and learning. Hippocrates said: “Ars longa vita brevis” – “The craft is long, life is short, the opportunity fleeting, the experiment treacherous and judgment difficult”. A good mind and brain scholar will have to develop deep understanding and knowledge not only of her or his area of expertise but also of other mind and brain-related fields. With this type of study it is very important to keep an open mind to learning and achievement in order to deal with these challenges in an intellectually fruitful manner. ●

**Q** *What motivated you to apply for the program at the Berlin School of Mind and Brain?*

**A** I have long been interested in mental disorders and the question of how mental processes and the brain are linked. Therefore, I studied psychology with a focus on clinical, cognitive, and neuropsychology at the University of Tübingen. My application at the Berlin School of Mind and Brain was primarily motivated by the School's interdisciplinary environment and the variety of courses offered. I am looking forward to broaden my perspective by learning more about the philosophy of the mind and by getting fresh input from other students with different academic backgrounds and research topics. In addition, I appreciate the opportunity to practice my English and that the School is located in Berlin, where the neuroscientific community is large and organizes many interesting talks and conferences throughout the year.

**Q** *What is your research topic?*

**A** I aim to better understand why some people become depressed and others don't. Although there is no doubt that inherited features, such as genetic makeup and stress both contribute to the manifestation of mental disorders, little is known for certain about disease etiology. In my doctoral project, I investigate a potential mechanism of gene-environment interaction relevant to the causation of depression. Further, my project addresses the questions of how and to what extent active mental behavior can modulate the interplay of genes and the environment.

**Q** *In your opinion, what are the challenges of an interdisciplinary study of the mind and brain?*

**A** Communication, finding a common language.

**Q** *What classes from undergraduate study do you wish you could remember or wish you had taken?*

**A** MATLAB programming, which can be very helpful when analyzing data.

Q *What do you find most interesting about your research?*

A What interests me the most about studying mental illness is the potential to help patients in the long run. Mental disorders cause enormous ailment and can have devastating consequences for the afflicted individuals and their families and friends. Owing to extensive scientific efforts, treatment options have improved considerably over the course of the last 60 years. Individual outcome variability is large, though, and there is a lack of appropriate tools to identify the best treatment for an individual patient. Investigating potential pathogenic mechanisms may lead us to new and individual treatment targets. What I find most interesting about my specific doctoral project is its comparatively broad perspective.

In my diploma thesis, for example, I investigated the effects of a single depression-related genetic variant on human brain function. I find it exciting that I will now go a step further by targeting several different kinds of risk variables to investigate their interplay.

PHÖBE SCHMIERER

Q *What do you like best about living in Berlin?*

A It never gets boring. The city has many facets, and there is always something new to explore. For example, I like that people with different cultural backgrounds live here together. This leads, among other things, to the possibility of trying out food from more or less all over the world. No matter how specific one's interests may be, there is always a bunch of other people who appreciate the same thing in Berlin. Therefore, virtually everything regarding arts, music, sports or whatever is available. ●



Q *What is your research topic?*

A My research topic focuses on the investigation of thoughts and thought disturbances regarding authorship and control. Why do we experience our thoughts as “produced” by ourselves? Why do we have control over our thoughts and under which circumstances is this control impaired? Where and how in the brain are these features generated? Not so long ago, authorship and thought control have been considered as inherent principles characterizing a person’s thoughts. Interestingly, there are two common phenomena in two different psychiatric disorders that point out that these claims are false: intrusive thoughts in patients with obsessive-compulsive disorder and inserted thoughts in patients with schizophrenia. Both of these thoughts are experienced as unwanted and irrepressible, thus a patient’s control over them is impaired. Additionally, schizophrenic patients with inserted thoughts report that these thoughts have not been produced by themselves, but were inserted into their heads. Thus, a lack of authorship is experienced.

The neuroscientific investigation of the neural networks underlying the phenomena of authorship and control of thoughts in general and its impairments in obsessive-compulsive disorder and schizophrenia is the main focus my research.

Q *What do you find most interesting about your research?*

A My research focuses on the neural signature of thought disturbances in mental disorders and their relationship with two philosophically-based concepts. For me, this interface between clinical psychology, neuroscience and philosophy is the most interesting and



NELE ADLER

also challenging part of my research. I am curious about gaining new insights into the pathophysiological mechanisms underlying these symptoms, exploring the mental world of patients with schizophrenia and obsessive-compulsive disorder. Moreover, I like the idea that clinical research is not only related to a potential therapeutic outcome or improvement for the patients, but is also drawing conclusions on thought generation processes in general. I hope my patient studies help reinforce the fact that there are phenomena in our everyday experience of thoughts, such as authorship, that have been questioned only recently, considering that they are based on specific brain mechanisms and do not come free.

🗨️ *What do your parents think you are doing?*

🗨️ I think they know the basic facts of my research topic and my everyday work: investigating authorship and thought control and the related brain structures, fMRI, thoughts, patients, healthy controls, programming, analyzing. Furthermore, almost all of my family members have been highly compliant control subjects in

my studies, therefore directly experiencing what it is like to do this part of my work.

🗨️ *What do you like best about living in Berlin?*

🗨️ I was born in Berlin and have spent my whole life in this great city, and I still love its lively atmosphere. Compared to other big cities in Europe, Berlin seems to be greener and more laid back. The low cost of living, the city's spaciousness, and a stunning variety of cultural offerings provide many options for self-fulfilment. Beside this, it is still impressive to see how fast the city is changing. Interestingly, every couple of years, another part of the city becomes its creative heart, and rapidly changes from underground chic to the place to be and, fortunately, back again. For me, this is the reason why Berlin is both an historical and a modern city at the same time. Being a small part of all of this makes me feel good. ●

**Q** *What motivated you to apply for the program at the Berlin School of Mind and Brain?*

**A** I wanted to do my doctoral thesis in Berlin. I looked for doctoral programs and finally found the Berlin School of Mind and Brain. The structured program in combination with teaching weeks and the possibility of being together with other (international) doctoral students were the most important reasons for applying. Furthermore, the connection between the human sciences and the natural sciences fit my academic background in psychology and my interest in the human brain very well.

**Q** *What is your research topic?*

**A** I study the role of the brain in impulsivity and self-control. Impulsivity is a personality trait that is present in healthy individuals. However, high impulsivity may also cause problems in social life, such as partnership trouble, fights, or traffic violations. The opposite of impulsivity can be described as self-control, given that people showing high impulsivity have problems controlling their actions, thoughts and emotions. Since an association between impulsivity and psychiatric disorders is apparent, I think neuroscientific research in this field is very important. Right now, I examine psychiatric patients, which are characterized by high impulsivity and low self-control competencies (alcohol-dependent patients and pathological gamblers). I use different approaches: administering different functional magnetic resonance imaging (fMRI) paradigms, examining fMRI resting state measurements, and acquiring MRI structural scans. I am also planning an experiment with transcranial direct current stimulation (tDCS) to determine the influence of virtual lesions.

Q *What classes from undergraduate study do you wish you could remember or wish you had taken?*

A I wish I could recall more about the brain's neuroanatomy. We had this class in our first and second semester. Despite the first teaching week about neuroanatomy, I have the feeling that my knowledge is rather broad than specific.

Q *What do you find most interesting about your research?*

A Learning how to run an MRI and how to analyse fMRI data and structural measurements is the most interesting aspect of my doctoral thesis. I hope that I can also learn more about how to recognize and classify abnormalities in the brain, which become visible with an MRI scan.

Q *What do you like best about living in Berlin?*

A The city is full of surprises. I have the feeling that boredom does not exist here.

Q *What would your (future) kids bring to "Show and Tell – Parents' Day"?*

A Maybe they would bring a picture of the brain. ●



SASKIA KÖHLER

Q *What motivated you to apply for the program at the Berlin School of Mind and Brain?*

A My main motivation for applying for the program at the Berlin School of Mind and Brain was the opportunity to do my doctoral degree in an interdisciplinary and inspirational environment, where I could combine my interest in human perception and mental disorders in a single research project.

Q *What is your research topic?*

A In the first part of my doctoral project, I used apparent motion – a visual illusion of motion that occurs when two stimuli separated by a distance are presented alternately – to investigate how patients with paranoid schizophrenia (1) make spatio-temporal predictions about incoming visual stimuli, and (2) integrate fragmented visual information into a coherent percept. Now I am focusing on the role of spontaneous brain oscillations in the perception of apparent motion in healthy subjects.

Q *In your opinion, what are the challenges of an interdisciplinary study of the mind and brain?*

A I think that the main challenge of an interdisciplinary study is coordinating specialists to work interactively as a team, allowing for the exchange of specific knowledge and expertise. Because my research topic is of medical and psychological interest, it naturally follows that I combine medical science and psychology. Therefore, I think of my approach as more of an interdisciplinary one, which aims at going beyond narrow disciplinary divisions. If we accept that the real world does not fit neatly into distinct disciplines, this concept may be a more intuitive one.



LIA SANDERS

Q *What do your parents think you are doing?*

A My parents know exactly what I am doing. They visited me last year in Berlin and volunteered to be subjects in my experiments!

Q *How would you explain what you do to a non-expert?*

A I investigate how the human brain makes sense of fragmented visual information and how such an inference mechanism might be disturbed in patients with paranoid schizophrenia.

Q *What would your (future) kids bring to “Show and Tell – Parents’ Day”?*

A Hopefully, they will present striking discoveries about the human mind.

Q *What do you like best about living in Berlin?*

A Berlin feels like a patchwork of several small villages. Each neighborhood has its own character, which makes this big city feel like a small town. I really like that! It is also a very tolerant and safe city. I have the impression that people from all over the world come here so they can pursue their creative dreams. Maybe this is a reason why Berlin’s cultural scene has so much to offer. In addition, compared to most other European capitals, Berlin is relatively cheap. It is affordable without having to compromise one’s lifestyle. ●

Q *What is your research topic?*

A I am interested in delusions and how this specific psychopathological symptom is represented at a neural level. Therefore I will develop delusion-specific material which is empirically based on interviews.

Q *What do your parents think you are doing?*

A Surprisingly, the ideas of my family are very diverse.

While my parents know that I will do my PhD in neuroscience with schizophrenia patients, my sister is proud that I am taking part in the Cluster of “Intelligence” of Humboldt University. My grandmother knows that I will do my PhD. But when I asked her what she thinks my concrete topic is, she was quite confused and thought it was something about senility. Therefore I addressed the next question to her.

Q *How would you explain what you do to a non-expert?*

A Delusions are a core symptom of schizophrenia. For example, patients believe they are being watched and followed by the CIA or that random events like the news on TV have a particular and unusual significance for them or that the man in the tube reads one’s thoughts. I will interview patients with delusions to assess frequent delusional topics. The identified themes then will then be transformed into photographs. The result is a set of photographs, which is specific for delusions. Concluding, I am interested in the neural process of the delusional pictures.

Q *What do you like best about living in Berlin?*

A I grew up in Berlin-Lichterfelde. That's why my first association with this city is my family and my friends. I love Berlin because of its diversity. Places like the Grunewald, Krumme Lanke and our close-knit neighborhood played a major role in my childhood. When I was older, I moved to Kreuzberg, where Berlin reveals another side of itself. When I moved to Marburg and Jena to study, Berlin always seemed like a harbor where you can get your bread in the morning in your jogging suit, anonymously, without running into someone you know. When I came back to Berlin, I lived in Prenzlauer Berg and next month I will move to Charlottenburg. That's what I like best about living in Berlin: Every move brings about a new attitude of life, every neighborhood is so different, but friends stay the same.

ANNE PANKOW

Q *What do you find most challenging about your research?*

A The heart of my project is to find a creative transformation from the collected delusional contents into visual material. For this part of my research I will work in cooperation with the Universität der Künste Berlin. I think this will be the biggest challenge, to bring different fields like psychology, philosophy and art together, because every discipline has its own background and its own language. ●





## CONTACT

*If you would like to talk to us about research at the Berlin School of Mind and Brain and our doctoral program, please get in touch!*

Berlin School of Mind and Brain  
Humboldt Graduate School  
Humboldt-Universität zu Berlin  
Luisenstraße 56, Haus 1, 10117 Berlin

E-mail [newsletter@mind-and-brain.de](mailto:newsletter@mind-and-brain.de)  
Telephone +49 30 20 93-17 07  
Fax +49 30 20 93-18 02

[www.mind-and-brain.de](http://www.mind-and-brain.de)  
[www.neuroscience-berlin.de](http://www.neuroscience-berlin.de)  
[www.neuroschoools-germany.com](http://www.neuroschoools-germany.com)

## Find us on

Facebook  
ResearchGATE

## IMPRINT

V.i.S.d.P.

Annette Winkelmann

Editor

Zarifa Mohamad

Proofreading

Annette Winkelmann

Layout and Typesetting

Sebastian Lehnert, Munich  
[www.deskism.com](http://www.deskism.com)

Front Cover

Wilhelm von Humboldt (1767–1835), scholar of comparative linguistics, Prussian statesman, and co-founder of Berlin University. Elder brother of Alexander (1769–1859), natural scientist and explorer.

© *Lucky Dragon – Fotolia.com*

Printing

Biedermann GmbH, Parsdorf

